

AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

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ESTABLISHED IN 1831.

PUBLISHED WEEKLY BY J. H. SCHULTZ & CO., AT NO. 9 SPRUCE ST., NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.
SECOND QUARTO SERIES, VOL. IX., No. 36.] SATURDAY, SEPTEMBER 3, 1853. [WHOLE No. 907, VOL. XXVI.

The *Mechanical Engineering* department of this paper will be under the charge of Mr. ZERAH COLBURN.

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American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, September 3, 1853.

Are we Building too many Railroads?

In estimating the future demands of our railroads, for the purpose of making some calculation as to the probable amount of money that will be annually required, we must not lose sight of the wants of our roads in operation. We call these completed, and are apt to overlook the large sums for which they are constantly calling, for new improvements, for double tracks, for increased equipment, for repairs, etc., etc. The regular calls for these objects are very large, and with the rapid progress of our roads, add very largely to their aggregate requirements.

The ultimate cost of a road will be pretty accurately measured by the amount of its future business. This is not only confirmed by experience, but is in fact a necessary law. There is a limit to their profits, and this limit is the standard value of money in the community where they are situated. Money invested in our railroads, cannot,

on an average, yield a greater return than an equal amount well invested in other enterprises. The reasons for this we have explained in previous numbers of the *Journal*. Where a road, therefore, has a very large business, its cost will be found to bear a regular proportion to its income. The greater the business, the greater the outlay required: so that a road having \$500,000 net earnings, very likely will not be able to declare a larger dividend, than when its net earnings were only half this sum. That such is the case, the experience of our oldest roads proves. It is well known that though the incomes of many of them have increased very rapidly, they have hardly been able to keep up their former rates of dividends—their capital account, to meet the additional business, increasing in equal ratio.

We state these things, not as objections to investments in railroads, but for the purpose of letting our people see how rapid must be the increase of the cost of our roads in operation; and how large and steady must be the calls for such. It is not only for three or four thousand miles which are annually constructing, that we must provide, but for the wants of fifteen thousand, which are, as we term them, *completed*, many of which are increasing their capital account *faster* than when first in process of construction. Take the case of our most profitable western railroads. The Cleveland and Columbus, the Little Miami, the Madison and Indianapolis, the two Michigan roads, and the Chicago and Galena; all of them with one exception, perhaps, are expending money in construction faster than at any other period in their history, for improvements which they must carry out, and which will probably add to the incomes and value of the stock of each road. When our roads are first opened, they are equal to the transaction of only a small amount of business. As this business increases, additional outlays are required to meet it: more fixtures, more equipment, more accommodations of all kinds; a greater extent of *sidings*, and often double tracks. Branch roads, or extensions of the original line are often believed to be expedient, so that with all the calls made for the objects enumerated, the growth of the capital account of a railroad is about as regular and steady after a road is completed, as when in progress.

Although the general correctness of the facts stated will not be questioned, yet it may be insisted that the progress of our railroads create the means necessary to meet their future demand; so that no matter how great these are, they are supplied as fast as they arise. This is true in one sense, but the assumption is not practically correct in its application. We will suppose that \$75,000,000 have been expended upon railroads in Ohio. Now, there is no doubt that this expenditure has added more than four times its amount to the aggregate value of the property of the State. The *market*, or *real*, value of the property of the State has been increased to this extent by the construction of railroads. There is no doubt that a much larger sum than the interest on the whole investment is annually saved to the people of the State by the reduced cost of transportation. But where does this saving go to? Not into railroads; at least only a small portion of it. The people of Ohio are growing rich, but they will not use this wealth in purchasing the bonds of the Little Miami railroad now offered, than which, nothing can be more safe as an investment for capital. They can turn their means to better account. No sooner is a railroad constructed, than the attention of the whole community is turned to the development of the resources which it has made available. One person sets at work to improve a *water* power; another, a *coal* mine; another will erect works to turn a bed of *iron ore* to account. The reduction of the *forest* into timber for domestic uses, will engage the attention and capital of a fourth. Various kinds of manufacturing establishments will be started to meet the increased means of the community to purchase. Agriculture has received a new stimulus. New lands are brought under cultivation, and a general improvement in the mode of culture will require an increased outlay. In such ways are the increased means of the country entirely employed, so that, in fact, the value of money in Ohio, from the increased opportunities for investment, notwithstanding the vast and unexampled increase of property, is greater now than it was ten years ago.

What is true of Ohio, is true of every State in the Union; so that railroads, instead of making money less valuable, has a direct tendency of making it more so; of increasing the demand, and

of raising the rates of interest. It is for these reasons that so few railroad securities are taken in the interior. It is not because there is no money, but because it can be much more profitably invested in the ways stated, than in the purchase of railroad securities at the rates they are selling.

It therefore becomes an important question, whether we can build all the roads that our people believe to be necessary, and make all the necessary improvements on the old, and at the same time employ so large a portion of our means in enterprises to which the railroads themselves give birth? In the United States, only the people of the eastern states, which are now densely settled, and where opportunities for profitable employment are comparatively few, invest to any considerable extent in the stocks and securities of railroads. For the reasons stated, the communities in which these works are in progress, will not invest in them. They will take stock in the outset, as a necessary condition of securing the road, but their object is the road, and not the income which the stock may yield. They will be likely to dispose of it the first opportunity, not because it is not valuable, but because they want all their means for other things. The eastern people who cannot share in the incidental advantages of railroads invest directly in their stocks and securities, as do foreigners for a similar reason. It is these parties that must furnish the means to carry forward our works. Can they, and will they furnish a sufficient sum to carry out all the schemes we have projected, and at the same time give us all we want for our roads in progress and operation, allowing our own people at the same time to employ a large portion of the domestic means of the country to be applied to the development of its resources, and to the prosecution of those enterprises which the railroad calls into existence? This question can be better answered by persons familiar with the dispositions of European capitalists to invest in our roads. A very large proportion of our domestic surplus capital goes into them. They are favorite objects for investment, and the general prosperity which prevails leaves annually a very large surplus for this purpose. Still our domestic means are not sufficient to carry forward all our undertakings; with our large supplies of money from abroad. It is by the aid of foreign capital that our extraordinary success has in part been due. But we cannot expect, nor in fact should we desire to see a very rapid increase in the regular volume that has been steadily flowing in upon us from abroad. It is better for us that foreigners should observe extreme caution in their purchases. An injudicious investment, though the purchaser alone might be in fault, might prove a serious injury because the result would be taken as a principle rather than as fact, and might influence a class, when only one person suffered. So too, it is much better for us to proceed with an uniform and regular, though with what may seem to be a slow pace, for it is quite certain that our progress under any circumstances will be quite as rapid as in a healthy growth. We must have in mind too, that in this country we can only see tendencies and not results. Everything is so new. The state and organization of society is so different from every other, that precedents may throw little light upon our course. By proceeding slowly we can each day use to a certain extent, the result of the pro-

ceeding, and in this way make the greater haste though with less apparent speed.

An application of these views, would, we think postpone numerous projects now urged upon the public attention. We need not so much discuss their merits as to say that at present there is not sufficient means to execute them. Our means are very likely to exceed our estimates, but the calls upon them are likely to be greater. The cost of our roads is yet a problem. It is easy to see that the wants of our old companies will be very large and that with the security which they have offered, the new projects will have to postpone their claims till the former are supplied. Under this state of things our conviction is, that money for new projects will be had with much less ease for the coming, than for the past year. The means of our people, fast as they are increasing, are not so rapidly as are the opportunities for profitable investment; and it is certain that we cannot expect any extraordinary increase in the supplies we are receiving from abroad. Capital is daily becoming more in demand in England, to meet the stimulus communicated to every department of business in that country. The continent to be sure is our best customer, but we shall be entirely satisfied, if with the present aspect of affairs, the aid that we have been accustomed to receive from that quarter is not diminished. With all these facts in view, it is certainly the dictate of prudence for our companies whose roads are in progress or in operation, to avoid assuming new liabilities, to control their operations as far as practicable, to adopt the most rigid economy in all their expenditures; and for those engaged in getting up and maturing new schemes, either to prepare the most solid foundation for the loans they may be compelled to make, or to postpone their projects till they can see clearly their path to success.

We make these remarks with a full conviction of the general soundness of our railroad system. What we have done has been well done. The success of our roads has vindicated the correctness of all the representations that have been made by those having them in charge. At home, they have promoted the prosperity of the country in an extraordinary degree. We have done much better by foreigners, who have invested in them, than we contracted to do. We have no doubt that the whole foreign investment in railroads in the United States, at the present market quotations, are at 10 per cent in advance of the actual cost. Let us now not spoil a good thing by overdoing it, nor lose neither among our domestic, nor foreign capitalists, the immense moral strength which the success of our railroads has secured. The 15,000 miles of road which we have constructed, is only a beginning of what is before us. We shall not stop till we have five times this extent of line. The future, therefore, is more important to us than the past or present, and we should do nothing to disable us to successfully meet and discharge its demands.

Lexington and Big Sandy Railroad.

The *Cynthiana News* says that Professor Mather, late State Geologist of Ohio, has just completed a geological survey of the country along the line of this road. He reports immense beds of iron and coal adjacent to the road, and expresses the opinion that coal can be shipped on it at three cents per bushel, at a good profit to the miner.

Robert Stephenson Esq., on Railway Competition.

A dinner was recently given in Montreal, Canada, to the Hon. Robert Stephenson, the distinguished Engineer, who is now in this country in connection with the Grand Trunk Line of Railroad. We give such part of his speech as will be of particular interest to our readers. In reply to a complimentary notice by the Chairman, Hon. P. McGill, Mr. Stephenson replied as follows:—

He had come to Canada upon a professional visit, and from what he had seen of the country, he was convinced that the present was but the commencement of a great railway system, and he ventured to express his sincere desire, that Canada should avoid those errors in producing the system which other countries had committed with theirs. Canada was yet only on the threshold and the proper laying out of the plan, he thought of as much importance as the introduction of railroads themselves. He hoped that the legislature of this country would not do as those of some countries had done; for although there were difficulties in the way, yet here it appeared to him they were principally those of legislation. Canada, at present had no occupied field before her, and much would depend upon the first step. If it were taken with judgment, other difficulties would be of comparatively little importance. If it were taken judiciously, what seemed but a speck in the West, might become a thunder cloud. The dangers might not be apparent to Canadians at present, but before he sat down he would endeavor to make us sensible of them. He had seen the rise and progress of railways in England, and those who had not could hardly appreciate the enormous losses occasioned by false legislation. Few, indeed, knew the rise and progress of the legislation with respect to them. He would occupy a few minutes in pointing out what these errors were, and what course to take to avoid them. He was incapable of oratory, but, having been mixed up with railway contentions for twenty years, he thought he could teach them how to avoid them.

The people then became sensible of the immense advantages of the railway horse, and the question assumed a new phase. Then all places rushed in to railway speculations. The country was tolerably well filled up with railway lines. Competition arose within the walls of Parliament, not for interest but for vanity.

Here Mr. Stephenson went into the history of several railway struggles, and stated that the committees in Parliament took into their consideration, not who was right or who was wrong, but entered upon questions entirely subsidiary, not at all connected with the profit of the lines, or the necessity of making them. The consequence was, that committees sometimes decided upon different lines upon reasons entirely apart from their real merits, or the scientific questions involved in the details. There was one district through which it was proposed to run two lines, and there was no other difficulty between them than the simple rivalry, that, if one got a charter, the other might also. But here, where the Committee might have given both, they gave neither. In another instance, two lines were projected through a barren country, and the Committee gave the one which afforded the least accommodation to the public. In another, where a line was to be run merely to shorten the time by a few minutes, leading through a mountainous country, the Committee gave both; so that, the Committee might have given both, they gave neither;—and where they should have given neither, they gave both. Such a species of legislation was faulty, and he hoped it would not be imitated in this country. There was, indeed, a Committee sitting in England, the attention of which he had called to these facts. After lines were granted, the competition which began within the walls of Parliament continued when the lines

came to be put in operation. People said it was necessary to have competition for the benefit of the public, that the whole country would be under the dominion of a Railway Corporation, and competition was the only means of checking it, and preserving moderate prices. Well, he could say, upon the authority of the Board of Trade, and from his own knowledge that, since competing lines commenced, out of 800 millions of pounds expended 60 had been wasted; that is, in duplicate lines. But in order to mark the inconsistency of the proceedings in railway legislation, when the London and Birmingham was asked for, the feasibility of the route was doubted, great difficulties were suggested as being in the way. Engineers were called in to decide every thing in opposition to it; the estimates were disputed and doubted, it was maintained that the company ought to prove the traffic that was to go over it, and that 6 or 8 per cent. was to be obtained upon the money invested, in fact a most paternal part was taken in the project. Before Parliament granted the charter, before the people were allowed to expend their own money, they were here asked to prove the traffic and the profit, and show a regular contract to establish, that the work was to be done within the estimate. The people clamoured for competition, and Parliament granted the expenditure of two capitals.

At that time it was believed that competition would compel them to carry passengers almost for nothing. But what was the result? The opulent were struck down and the poor were reduced to penury. Nothing but the resources of British commerce could have sustained such a shock. These serious evils of legislation it might be difficult to escape from in England, but they should be weighed well before they were brought into Canada, either by the present or any future government. It was said that all was right, the public gained what the proprietors lost. But the public had not gained. Capital was absorbed and diverted from other profitable employment.—Lines had been located which never would have been built had a directing genius presided over the chartering of them; and he did not envy the man who could glory at one part of the community prospering by the ruin of another. This error had been most disastrous in his country, and he hoped it would not be committed here. Competition never answered a beneficial purpose. Competition like poverty was the mother of invention; and when things came to the lowest ebb, the remedy was in amalgamation. In no instance had it occurred that amalgamation had not reduced charges. Mr. Stephenson then referred generally to the expense of working short lines, and the necessity of extinguishing them by amalgamation, and mentioned an instance, where, including water communications, there were five competing lines. The result from competition was, that they laid their heads together and raised tolls to the highest; but here, where there was no competition, nothing was to be done but to develop our resources, and make the profits highest. Mr. S. then referred to foreign countries. First of all to Belgium, which had employed one or two men to lay out the country so as to obtain the greatest amount of accommodation with the least expenditure of money. The speed obtained was not perhaps so great as that attained in England; but it will bear comparison with that in any other country. The minor points of the country were filled up according to the original design, and all conducted with economy. In France no lines were allowed to be made unless they were called for and made part of a great system. France was slow, but bore comparison with Great Britain, for there competition had marred the whole scheme. Switzerland was a collection of several cantons, each preferring its own interests as to gauge, and building without reference to the whole. They decided to send to England for an engineer to design for them a network of railways, and he (Mr. S.) had had the honor to be called in, and had assisted in designing their railways from end to end, and capital was now flowing in, satisfied because there was no rival

lines, and there was no doubt of their completion. He then said that Canadians wanted English capital, and advised them to be guarded in the system they should adopt, especially in regard to reckless competition. He would for himself hesitate to recommend to his friends in England to invest their money in railways here, if reckless competition were allowed, for nothing but loss and confusion would result. Belgium, France and Switzerland all possessed great advantages over England in having no rival lines, and in having laid out their main lines for the benefit of the whole country, rather than allowing to any town or any portion of the country a preponderating voice in their location. They had established from end to end of their country a system in harmony with itself. They could not prevent portions of the country having their railways, but they were so small, as not to interfere with the great design. It was the interest of the whole country that was involved, not that of individuals nor of particular localities.

Canadians ought to have a system which would work in all harmony. What was to be gained by ruinous competition? If passions and interests were brought into play, nothing could result but destruction of property and loss of life too.

It strikes us that Mr. Stephenson much better appreciates the evils of competition, than understands the remedy for them. He shows to a demonstration, that a legislature is incompetent to properly regulate and control this matter of competition, and at the same time he appears to look to legislation only for the remedy. He appeals to the Canadian government not to imitate the follies of the Imperial Parliament, forgetting that their mistakes come from an inherent inability in all parliaments to successfully execute or manage works of a purely commercial character. In the first place, members of a legislature may be entirely ignorant upon a subject upon which they may be called upon to act. They will in all cases be wanting in that instinctive sagacity which springs only from a direct interest in the result. To constitute a legislative body the umpire in cases of dispute to determine the proper route of a road, is to select the most incompetent one possible, to say nothing of the great probability that their discussion may be influenced by improper motives. Why do "Parliamentary expenses" amount to \$10,000 per mile with some of the more important English roads? This sum surely is not expended for the sole purpose of enlightening the public mind upon the real merits of the project, but for the purpose of securing what were believed to be certain special privileges! In other words, the charters of many of the English roads were bought outright. Now when the legislature retains in its hands the authority to grant railroad charters, the largest purse will be sure to win, whether the contest be before a British, Canadian, or American legislature. The weaker must submit to the stronger whether right or wrong. This is legislation, and this is history all the world over. Wherever we find the most direct legislation, do we find the construction of railroads carried to the greatest excess, and the greatest losses by mismanagement and imprudence. Just look at history in these matters. A railroad company get a charter which confers special, or extraordinary privileges, not possessed by any other body of men. The consequence is that the former construct their road upon a route that suits themselves, without reference to the wants or interest of others, or the community; or without any broad or comprehensive plan dictated by a wise self in-

terest. "If we commit mistakes," say they, "others cannot take advantage of them to our disadvantage." In laying out their road, therefore, they will, nine cases in ten, commit the gravest errors. These are soon seen, and another company starts up, applies for a charter for the purpose of correcting them, and of extending the advantages of railroad to districts not accommodated by the first road. Any second concession the first company opposes, and the legislature immediately becomes the arena of a heated partisan warfare; both parties taking every course, and using every means that promise to gain them the victory. In this way all the companies that have secured charters invariably make common cause against all seeking similar privileges, and it frequently happens that such companies are strong enough to control, for a time, a legislatures which in this way become the agent of an unprincipled and factious monopoly, and the instrument of the grossest outrages on popular rights. But the outsiders having right on their side, by dint of perseverance carry their points, one after another, and exasperated by the opposition they have met with, they build their proposed roads, whether they promise to be profitable or not, as much to injure their opponents and to gratify a grudge, as to benefit themselves. So we have one road after another, all rivals of each other, and all of them built without any well considered plan, adapting them to promote the highest good on the community, and without any reference to their probable success, as investments of capital.

Such are the results of special legislation upon the subject of railroads. We need not go to England for pregnant illustrations of the correctness of our remarks. In the United States we have plenty of special legislation, and are now fast applying the remedy, by divorcing government from all connection with railroads, leaving the questions of route, mode of construction and management, entirely in private hands. The laws of New York, which are fast being imitated by other states, authorized any body of men to associate for the construction of a railroad, and upon the observance of certain formalities gives them the required authority for this purpose. All this is done by a general law. A party may organize to-day for the purpose of constructing a railroad to Albany along side of the Hudson river road, if they choose. A dozen roads may be built along the same route if fools enough can be found to build them. In this country we do not give the monopoly of route to any party. This may seem strange doctrine to an Englishman. "What" says he "if I put my money into a railroad, can another party come and build another railroad immediately alongside the one I have stock in, and thus render it worthless?" Certainly; and what he regards as threatening the greatest danger, constitutes his real security, for the reason, that when a company know that every mistake they commit will certainly be corrected by a subsequent project, they will be very careful to secure to themselves the strongest of all monopolies; that resulting from the choice of the best route, and a properly constructed and well managed road. Had they special privileges they would rely upon such, and feel indifferent to secure those advantages upon which the safety of all investments in the end, must rest. Would ship building go on so successfully did government presume to de-

side upon the model, the number of ships to be built, or the routes which they should pursue; or would farming prove equally profitable were the number of acres to be planted, the mode of tillage, or the variety of products to be raised, made to depend upon a *decree* of a government? It does not take long to answer such questions, and it should take no longer to decide that the building of railroads should be as open to competition as is any other branch of industry. Let these works take care of themselves. If people build too many ships *one* year, they build less *next*. Private interest will see and correct the error, ten times as quick as will a blind and stupid legislature.

Mr. Stephenson brings all his illustrations from Europe, overlooking the most appropriate one to his subject, the success of the railroads of the United States, most of which have been built under perfect freedom of legislation. The entire investment in railroads in the United States, could it be sold at its market price, would command a *premium* on its cost. We have been the only people who have made their roads desirable subjects for the investment of capital, in addition to the incidental advantages we have secured. Why not make use of these facts, to draw from it the lesson they teach.

To our mind, Mr. Stephenson entirely misconceives the dangers to which the Canadas are exposed. 'Tis not the construction of *competing* lines, but being governed by *political* rather than *commercial* considerations in the selection of *routes* for their roads. What have the Canadas been trying to do for years past? why, build a *political* road from *Montreal*, by way of *Quebec* and *Gaspe*, to *Halifax*. Now there is not a person experienced in railroads in this country, that would give it as his opinion, that a road from *Trois Pistoles* to *Miramichi*, some 200 miles, would yield sufficient income to pay for the *fuel* burned in the locomotives. This scheme failed because the *Home* government had too much good sense to sanction it. Yet the Canadian government, Mr. Hincks assures us, are still determined to carry out their scheme. Should they succeed, and should it be adopted as a part of the *Grand Trunk* line, it would inevitably ruin the stock of the whole.—Here, then, is a field for Mr. Stephenson's labors, and one in which he can do a vast deal of good; and in the Utopian scheme of attempting to carry a railroad over the desert country of Canada and New Brunswick, let him draw another illustration of the *incompetency* of government to act wisely in such matters, as determining the route, mode of construction, or managing of a railroad.

There can be no doubt that the most certain way to avoid the *evils* of competition in such countries as the United States and Great Britain is to throw wide open the door to railroad construction, and let railroad companies understand in the outset, that they can expect no protection from government for the blunders they may commit.—When no such protection is expected, but few blunders will be committed. When people are left free to act in accordance with their own judgments, they will not waste their money in railroads, any sooner than in any other business, and should railroads be built in advance of the wants of the country, a re-action, which is sure to take place, will soon cure the evil. We are much safer

against excess, where the right of construction is open to all, than where it is granted as a particular favor, by a special act of the legislature.

South-Western Railroad Extension.

We learn from the *Georgian* that at the meeting of the directors of the South-western railroad, held at Macon on the 11th inst., it was voted unanimously to extend the road the distance of about 85 miles beyond Americus, provided planters and others along the line of the proposed extension will furnish two-fifths of the estimated cost of the work. Two-fifths will be 225,000 00 dollars, according to the estimates. The extension will be in a right line through the 12th district of Lee, and the 4th of Randolph, into the 8d of Baker county, striking the boundary of the latter at a point nearly midway between Albany and Fort Gaines.—The survey is to be made immediately. We are informed that there is not the slightest doubt that the planters will subscribe the amount required of them.

The road from Oglethorpe to Americus has been for months under contract, and the work is in a state of vigorous prosecution. When the extension now contemplated is completed, it can hardly be doubted that Savannah will command all the cotton grown in the highly productive region embraced between the Chattahoochee and Flint rivers. The crop of that section, already large, will be greatly augmented under the stimulating influences of increased facilities for reaching the markets of the world.

Cattawissa Railroad.

The workmen are now engaged in laying down the iron on the Cattawissa road. The road is nearly or quite all graded to Tamaqua, and the bridges over ravines and creeks in the Cattawissa Valley, will be completed this summer.

Railroad Management.

The great means of safety in railroad travelling are found in a good construction of roads and machinery, and in a guarded and prudential system of management. These requisites must not, and need not, however, interfere with the capacity or velocity of the trains. The inducements of travelling by railroad are to travel *safely*, and to travel *quickly*. In fact the sentiment of the age is in favor of high speeds, and there are more who would trust themselves to the *certainty* of speed, and the *chances* of accident, than the chances of speed and certainty of safety.

Our railroads are now too important in their operations and directly affect the convenience and safety of too large a number of our people to be longer without a system of management which shall secure protection to each of these rights. It is useless to deny the possibility of effecting such results, it is useless to seek for apologies for any of the criminal malpractices which have for so long a time disgraced our railroad system. Not that in all times and in all cases can we expect entire immunity from accidents, but we have a right to expect that calamities like those at Norwalk, Chicago, Valley Falls, and upon the Camden and Amboy road, calamities proceeding from like palpable and inexcusable negligence, shall never be repeated.

The Norwalk accident was caused by a want of signals and signal operators, whereby a hidden danger was sprung upon a faithful engineer and a

train of unsuspecting passengers. The accident at Chicago was directly due to the same deficiency, but primarily to the manner in which two great railroads were allowed to cross at grade. The accidents on the Providence and Worcester and the Camden and Amboy railroads were caused directly by a misconception of time (a matter which by right has no bearing upon safety, as a man has a right to be as safe at twelve o'clock as at a quarter past twelve, or inversely;) while both were primarily due to the same deficiency as existed at Chicago. The writer of this article stated a principle, after the occurrence of the Norwalk accident, to the effect, that because no accidents had occurred on any road was not of itself an argument that such road was the best managed. The doctrine was of course attacked, and the experience of one or two roads appealed to in opposition to its tendency. But there is evidence that on the lines mentioned, unsafe practices existed; such as naturally tend to produce accidents, and which would only require an opportunity for development. Each road has its *first* accident, and all of the roads upon which the memorable calamities of 1858 have occurred, could have previously put in their claims for the rank of the best managed roads in the country. Their previous good fortune was the security relied upon, but experience has proved its treacherous character. Fortune or *luck* is as fickle in the management of railroads as elsewhere. It is notorious that under our present system of passenger transportation, the causes which produce accidents are in active operation, and the only chances are, *which* will soonest take effect, and *what* will be the extent of its results.

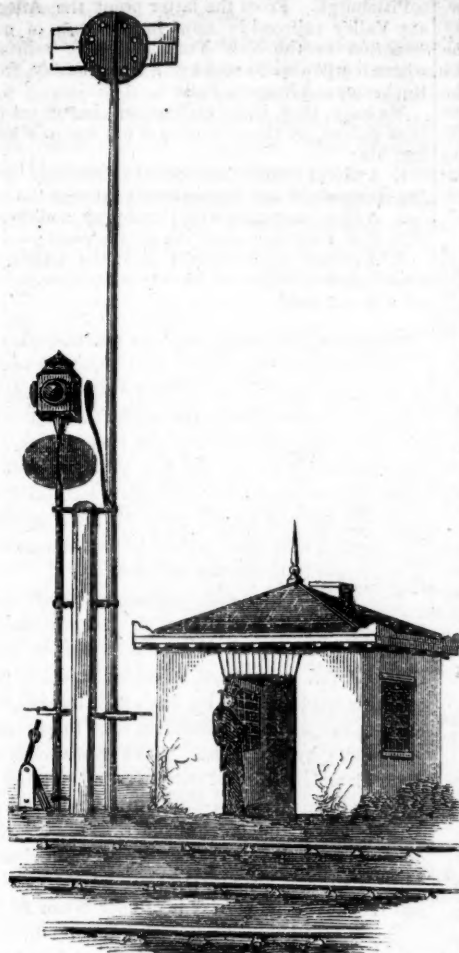
We have uniformly contended for the necessity, both on account of economy and of safety, for establishing signals on railroads, for upon their exhibition and the information they are thereby enabled to impart, must rest mainly the safety of an advancing train. Double tracks are collateral means of safety, but the information which tells the engineman that all is right, or otherwise, upon the track, is the most certain preventive of accident. Double tracks govern the capacity more than the safety of a road.

As an illustration of a complete system of signals, we may instance those employed on the great English lines. Among their most important arrangements are the giving and receiving of signals such as police, stationary, semaphore, junction, auxiliary, train, special and detonating signals. Every train upon the line is regulated in compliance with them. The *white* signal, whether a flag or light, is a signal of safety, *green*, of caution, and *red* of danger. When the line is clear, the policemen, always stationed along the route, give no signals, except at night, when white lights are exhibited, but in cases of danger or doubt, red or green flags or lamps are employed.

That interesting and useful English work, "Our Iron Roads" gives a description of the signals usually employed, which we transcribe to our columns.

"The signal arrangements at the intermediate stations on the London and North Western line, are various, but all are simple and complete. A station signal is provided for both the up and the down line, one being usually erected at each end of the station, and of the kind represented in figure 1.

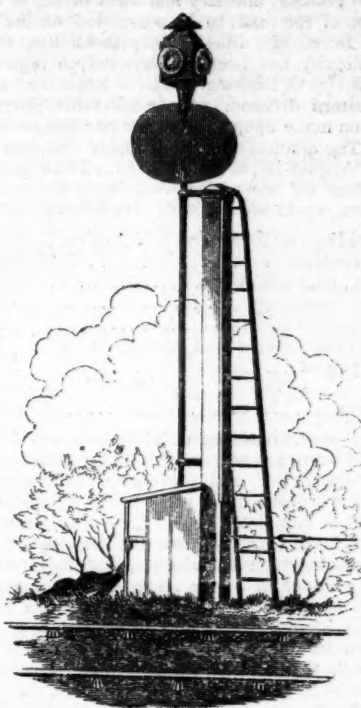
Fig. 1.—STATION SIGNAL.



"On a train stopping, or travelling slowly through an intermediate station, the signal which is painted red on one side is shown for five minutes in the direction from which the train has come, in order to stop any following train: the green signal, on the shorter post, is then turned on for five minutes, to complete the ten minutes, precautionary signal. As the lamps and the boards are connected together, the lamp has only to be lighted at night or in a fog, and the arrangement is complete. When the vane is presented edge-ways to the driver of an approaching train, as is seen in the engraving, it shows that all is right. The higher mast supports the red signal, and the lower one with the lamp has the green.

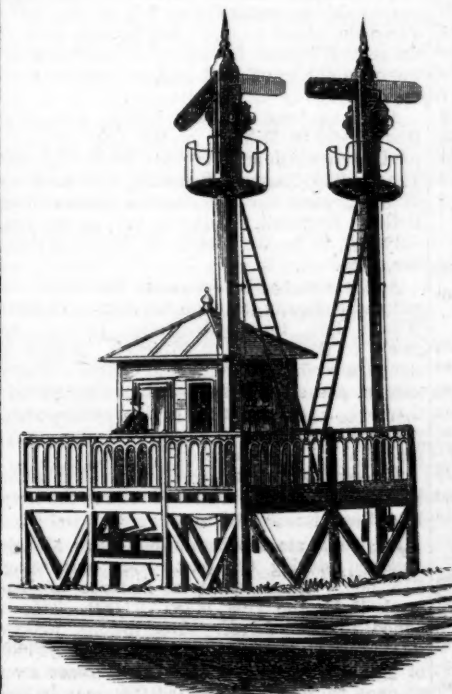
"Besides these there are auxiliary signals at most of the principal stations, worked by means of wires, which permit their being placed at almost any distance from the spot where they are regulated. These auxiliaries are especially valuable in thick weather; for as they are constructed several hundred yards up or down the line, drivers of engines can obey them when it would be impossible to see the station signals with distinctness. They are constructed with only the green, or "caution," and the "all right" signals; the presence of the former intimating that the red signal is turned on at the station, and that it is therefore to be approached slowly. In the engraving of the station signal, Fig. 1, may be observed the lever by means of which the auxiliary signal is worked.

Fig. 2.—AUXILIARY SIGNAL.



"Where junction lines unite or lines cross one another at the same level, it is essential that a complete system of signalling should be adopted. The engraving fig. 3 represents a junction or double-signal station. It consists of two masts to

Fig. 3.—JUNCTION SIGNAL.



the summits of which fan-like arms and lamps are attached; these convey the desired information to the drivers of approaching trains. When the arm which is painted red, and which is always on the left of the engine-driver, is at right angles to the mast, it signifies *danger*, and the train must be immediately stopped; if it be at an angle of forty

five degrees, *caution* must be observed; and if the arm be parallel with the post, it announces the signal *all right*.

"In connection with these junction signals, there is a wooden cottage erected on an elevated platform, that the policeman on duty may see the trains at a distance; there is also an apparatus for working the signals, and another for shifting the switches. In order better to understand the arrangements, let it be supposed that on each of the two lines which here form a junction a train is advancing. The engine drivers, when they arrive at some appointed spot—at, perhaps, half a mile distant from the station—give a whistle which would attract the attention of the signal man, supposing that, by some inadvertence, or by the trains being unexpected, he were not to be looking in that direction. As the man has not yet altered the signals, they are both fully on at *danger*, that being their position when at rest, and supposing neither of the arms to be depressed, the trains would pull up; or gently approach the signal station to see the cause of the detention, taking care, at the same time, to be ready to stop altogether at any moment. If, however, all is right, one train may be permitted to advance; precedence being given to the one nearest, or to a faster running train; and the policeman, putting his foot into a kind of stirrup, there being four arranged side by side, by this means lowers one of the arms to the *caution* position, and the train thus signalled, proceeds, while by means of the handles the switches are shifted, if this be necessary.

"If a tunnel be in the neighborhood of a station—as is the case with the Primrose Hill, Watford and Liverpool tunnels—it is of great importance that an efficient system of signalling should be adopted, aided by electric-telegraph communication from end to end. It is, in fact, now generally admitted, that wherever there are tunnels of any considerable length, the electric telegraph ought to be employed, and that two trains should never be permitted on the same line of rails in a tunnel at the same time. Other precautions are necessary under extraordinary circumstances.—Hand flags in windy weather are bad signals, for they have frequently the appearance of a mere string, while painted boards always show their full size. If on a sudden emergency a red flag or lamp cannot be obtained, a white one, or any other signal waved violently, is a sign of *danger*."

The governmental management of railroads in Great Britain, is also far more fully organized than in America. For the purpose of giving the system of the English railway inspection laws we copy the following condensed statement from the Philadelphia Register:

In England, the Board of Trade, consisting of the lords of the committee of her majesty's privy council for trade and foreign plantations, is vested with ample powers over railways, and certain parts of the construction must be done under the direction of the board, or else be liable to be abated. By an act of parliament, passed in 1842, no railway, or portion of a railway, can be opened for the public conveyance of passengers, until one month after notice of intention to open the same has been given by the company to the board of trade, nor until ten days' notice by the company to the board, of the time when the railway, or the portion thereof, will, in the opinion of the company, be sufficiently completed for the safe conveyance of passengers. The board then cause the railway to be inspected; and if, in its opinion, the

opening would be attended with danger to the public, or the works are incomplete, or the company have not a sufficient establishment for the proper working of the road, they suspend the opening until all deficiencies are supplied.

Every railroad company within forty-eight hours after the occurrence upon its road of any accident, with serious personal injury to the public, is obliged to give notice thereof to the board, under a penalty of five pounds for every day during which the omission shall continue. The board may also order a company to make returns of accidents, whether attended with serious personal injury or not, for the information of the board, with a view to public safety.

The board also has power at any time to order an inspection of the railways, stations, works, buildings, engines and carriages of a company, and the inspection must be made by some one not in any way connected with the company.

Any officer or agent of a company, may seize and detain an engineer or other person employed on the road, who shall have been found drunk while on duty, or who has wilfully injured or endangered life and property, and carry such person before a justice, without a warrant or information oath, who, acting summarily in the matter, is authorized to inflict certain prescribed punishments. The subjects of fences, crossings, tolls, cheap trains for the poorer and laboring classes of travellers, electrical telegraphs, are also regulated by minute and peremptory provisions.

By an act passed in 1846, the gauge of railways in Great Britain was fixed thenceforward, at four feet eight and a half inches, and at five feet three inches in Ireland. Stringent punishments, extending even at the discretion of the court, to transportation for life, are established, for such as shall wilfully obstruct or injure the road or works of the company, or throw anything upon the track with an intent to do harm.

In fact, the whole organization of a railway is subject to statutory control in England. Not only its stock, dividends, capital, finances, shares, proceedings of directors, tolls, accounts, books of minutes, byelaws, orders and rules are regulated, but all the matters connected with the actual building and working of the road; such as the speed, the description of cars, engines, etc., the stations, bridges, arches, grades, curves, etc. A complete system, of innumerable minute provisions, is established, bringing the whole railway management of England, in all its departments, under the control of one central supervisory authority.

Marietta and Cincinnati Railway.

WM. P. CUTLER, Esq., President of this Company, has made his annual report of its operations from which we have the following statements:

At the date of the preceding annual meeting of the stockholders, the road had been placed under contract from Blanchester to the southwestern limits of the coal fields in Jackson and Vinton counties. Upon this work, an expenditure had, at that time, been made, to the amount of \$350,000.

From Chillicothe eastward, a distance of 24 miles, the grading, masonry and bridging are so far advanced as to permit the track laying to commence by the first of November of the present year, and to continue throughout without delay. The amount expended upon this portion of the work—embraced by the two contracts of Messrs. Cushing, Wood & Co—was \$1,007,357 44, up to August 1st. A force of 2000 men, 300 horses and oxen, 2 steam excavators, 2 locomotives and 75 gravel cars, is now employed upon this work.

The entire amount of iron, as yet purchased, is 11,400 tons—sufficient to lay about 100 miles of railroad.

EXTENSION TO THE OHIO RIVER.

The preparatory surveys on the remainder of the line not previously under contract to the Ohio river, had not been made at the date of the last annual meeting of the stockholders.

On the 16th day of September, 1852, a contract was made with Messrs. French, Dodge & Co., for the grading, masonry and track laying of this portion of the road, to be completed on the 1st day of December, 1854. Notwithstanding the same difficulty has been encountered, in regard to the scarcity of laboring hands, as has embarrassed the western division, very respectable progress has been made upon the heavier portions of the work.

The amount expended, under this contract, up to August 1st, is \$333,510 54. Thus, the expenditure on the entire work, from the commencement, up to the 1st inst., is as follows, viz:

| | |
|---|----------------|
| Grading, masonry and bridging on C. W. & Co.'s contract | \$1,007,357 44 |
| Do., on F. D. & Co.'s | 333,510 54 |
| For machinery | 67,638 88 |
| For cross ties, etc. | 9,097 33 |
| For engineering and contingent expenses | 84,949 63 |

Total

Forces, consisting of 2146 men and 500 horses and oxen, are now employed by Messrs. French, Dodge & Co., and the energy with which their work is prosecuted, gives every assurance that it will be completed within the contract time.

Careful surveys of two distinct routes have been made between Marietta and Wheeling, resulting in the choice of a line skirting the margin of the Ohio—being lineally somewhat longer than a direct interior route, but in respect to grades and cost decidedly preferable. On the 16th of July, 1853, this line was placed under contract—due notice having been given to bidders.

To Messrs. DeGraff, Brintnall, Bradley & Co., the first forty sections from Marietta were awarded; the remaining thirty-three sections of the line to Wheeling, have been let to Messrs. Whittemore, Bradley & Co., all to be completed by September 1st, 1854.

EXTENSION TO CINCINNATI.

The difficulties attending a connection with other roads near the city of Cincinnati, and of finding suitable accommodations in that city, have induced the board to make perspicuous surveys of the several routes by which an independent entrance might be effected into the business parts of the city.

A line has been adopted, leading directly from Blanchester to Milford, on the Little Miami railroad, from which an entrance may be commanded. The grading, masonry, ballasting and track laying of this division were placed in the hands of Messrs. DeGraff, Brintnall, Bradley & Co., on the 16th of July last, to be completed on the 1st of September, 1854.

Application has been made to the Pennsylvania railroad company, through the agency of Noah L. Wilson, Esq., for a subscription to our capital stock, to the amount of \$750,000. Mainly thro' the persevering and influential efforts of that gentleman, the stockholders of that corporation authorized a subscription of the above amount, which has since been made, and the proceeds placed at the disposal of our company.

Through the same agency, a subscription of \$250,000 has been obtained from the city of Wheeling.

Individual stock subscriptions have also been obtained, during the past year, amounting to \$732,000. Thus the total increase of capital stock during the year, is \$1,732,000. This sum added to the former subscriptions, makes a total basis, (including Cincinnati loan of \$150,000) of \$3,717,000. It is believed an increase on this amount, to the sum of \$4,000,000, may be realized during the coming year.

In addition to the direct Philadelphia connexion obtained at Wheeling through the Hempfield road, we are also offered a direct railroad route to Pittsburgh by using a portion of the Hempfield and the Chartiers Valley railroad. On the west side of the Ohio river, an extension of the Cleveland and Wellsville railroad will connect our line, not only with that road, already completed

to Cleveland, but with a somewhat circuitous, though, in all other respects, a favorable route to Pittsburgh. From the latter point the Alleghany Valley railroad is now in progress of construction to the New York and Erie railroad, where it will also be met by a line directly from Rochester and Niagara Falls.

We have, thus, three distinct and important objects gained, by the extension of our line to Wheeling, viz:

1. A direct connection with Philadelphia over the Hempfield and Pennsylvania railroad:—
2. A like connection with Pittsburgh, and thence with New York line centering at this point:—
3. A route to Cleveland and the Lakes, of great value to the more eastern interests connected with our road.

Directions for applying the Chilled Tire.

The attention with which the chilled tires have come to be regarded by those railroad managers anxious to reduce their expenses for motive power, and the consequent demand for them which has been increasing for the last few years, renders it of importance to master machinists and others to know the few and simple rules for their application, so that they shall derive the best satisfaction in their operation and maintenance.

The chilled tires are necessarily thicker than wrought tires, so that tires of the same diameter require smaller wheel centers than for wrought tires. A full assortment of center and tire patterns are kept on hand by Bush and Lobdell, embracing the common sizes from four to six feet, progressing by six inches. They have intermediate diameters also of tires for application to wheel centers originally tired with wrought iron. An engine running on wrought tires of 60 inches diameter may thereby be fitted with 63 inch chilled tires without abandoning the original centers, and this alteration of size is oftener better for an engine than otherwise. For a common four and a half feet wheel center, which is about 50½ inches in diameter in the rough, they apply a 56 inch tire, and for a four feet wheel center a 50 inch tire.

If the wheel centers in use should prove a little large they will bear turning down as the chilled tire, from the fact that it never wears thin, does not require a stiff rim to support it as is required for a wrought tire. The chilled tires for an engine should all be bored and the centers turned to one gauge so that one tire may be applied indiscriminately to any wheel in a set of drivers. This gauge should be adjusted to a taper of one quarter of an inch across the rim of the center, whereby the inner face of the center is half an inch larger in diameter than the outer face. If all the tires have flanges (and we are convinced from an examination of some of the best running and most economically maintained engines that every wheel should be flanged,) it will be found that this taper will in no way affect the security of the application of the tires, as the action of the rail against the flange forces the tire on instead of off. The tire is held by seven or eight square bolts, seven eighths of an inch square passing straight through corresponding recesses on the face of the center rim, and having hook heads turned up against the outer face of the tire, and nuts screwed up against the center. The bolts do not follow the slope of the face of the rim but pass through parallel with the center line of the wheel. In the case of ordinary spoke wheels one bolt to every other spokes sufficient.

After drawing the tire firmly on by the nuts, but without straining it, the ends of the bolts should be lightly riveted over the nuts to prevent them from working loose.

Should there be the least difference in the outer diameters of a set of tire ordered for an engine, the largest are to be selected for the principal pair of driving wheels, or those to which the main connecting rod is applied. This selection will save some slip from the fact that the other drivers having more end play are oftener running on their larger diameters. A better adhesion of the principal pair of drivers will also be secured. It is not to be expected that any difference will exist of over one twentieth of an inch.

The solid chilled tires have a raised surface of two inches in width on their outer face, while the joint they make upon the wheel center (which is quite thin) can be made, by careful fitting, so as not to be seen. It is customary, and it gives a good appearance, to paint the wheel center and the inner circle of the tire of a bright red and to paint the outer two inches of the tire-edge black. The double plate center and hollow tire, for which a growing preference is manifested, has the same raised surface on the edge of the tire to be painted black, while the inner circle of some five inches depth is painted green, and the center vermilion. Such a wheel has a beautiful appearance.

We would recommend Superintendents and Master Machinists, desirous of testing these tires, to forward their orders to Bush and Lobdell of Wilmington, Delaware, whose long experience in the selection and melting of iron, and in pouring chilled wheels enables them to guarantee a wheel or tire combining strength of iron with uniformity and soundness of chill. By a persevering adherence in every case to the best processes of manufacture they have secured a substantial reputation for their productions, and in the way of cast iron tires, fully as well deserved as the reputation of *Bowling* among wrought tires.

Explosion of a Locomotive Boiler.

On Thursday, the 18th ult., while a locomotive attached to the down freight train, on the Georgia State road, was stopping at a water station, about eight miles above Marietta, its boiler exploded with great force, killing three persons and injuring others. The occasion of the explosion was believed to be due to an unnecessary pressure of steam induced partly by a defect in the safety valve scale, by imprudent management, and by an inferior quality of iron used in the material of the boiler. The engine was built last year by Anderson and Souther of the Tredegar Locomotive works of Richmond, Va.

Many of the fragments of the boiler having been collected, were inspected by several individuals accustomed to work in iron. Among these was W. W. Baldwin, Superintendent of Machine Works of the State Road, who gave it as his opinion, that no examination of the iron in the condition it then was, with the eye alone, would be sufficient to determine its quality, but so far as he could judge by that means, he believed some of it of an inferior quality. Other witnesses thought much of the iron was bad.

The following report was made by a committee appointed to examine the condition of the boiler after explosion:

ATLANTA, August 24th, 1853.

We, the undersigned, being called upon by George Yonge, General Superintendent of the Western and Atlantic Railroad, to examine the locomotive Engine "Bobuel," which exploded on the 18th inst. at "Moon's Station," on said Railroad, while taking in wood and water.

In the first place, we examined the model and construction of the Engine, and find nothing in that which could have caused the explosion.

Secondly, we examined the safety-valve, lever and balance, on an engine of the same model, and built by the same parties at the same time, and find them correct in every particular.

Thirdly, we examined the Boiler as to its material and construction. We find the material to be of the ordinary thickness, say 5-16ths of an inch, but the iron of inferior quality. With regard to the construction, we find the Boiler of a large size, the rivets 5-8ths of an inch in diameter, and 2 inches apart. — We consider the rivets too small, and too far apart for a boiler of that size, as compared with other boilers in use. We further find that the dome part of the boiler was not properly braced. Upon a close examination of the boiler and flues, we find that there must have been a sufficiency of water; and further, there was a fusible plug in the crown sheet, which confirms us in this opinion.

We all agree in the opinion, that the Engine was safe to use with a pressure of 120 lbs. to the square inch, and in our opinion there must have been an unnecessary and excessive head of steam to have caused the explosion.

THOS. DOUGHERTY, Master Machinist,
Macon & Western R. R.

JOHN DORES, Boiler Maker.

WILLIAM RUSHTON, Master Machinist,
Georgia R. R.

The verdict of these men might be made to apply equally as well to the material used in other engines constructed at the Tredegar works. The reputation of the Tredegar iron, whatever it may once have been, would not warrant the use of such boiler plates as were liable to crack in bending, or to such rivet iron as would not withstand the working necessary to form a proper rivet head. We have seen the character and application of this iron to these locomotives, and have often expressed fears of its failure. We are not in favor of establishing locomotive shops either in the south or west for the mere purpose of creating a market for materials not otherwise able to command a satisfactory sale.

Standard of Time of the New York and Erie Railroad.

The means of ascertaining and imparting a correct knowledge of time is of great importance to all railroads, and especially to those not thoroughly protected at every point by watchmen and signals, as while in the general case it is the only test of promptness, it is in the latter case the primary means of safety. The New York and Erie railroad company have perfected very complete arrangements for this end, and are able to guarantee that no accidents shall occur on their line owing to any excusable ignorance of time.

Mr. R. H. Bull, the astronomer, is retained in the service of the company to ascertain the correct time from the heavens each day, and to regulate the company's chronometers thereby. The time is then dispatched daily, at noon, to every telegraph station on the road. The principal chronometer of the company is kept at the superintendent's office, foot of Duane street, in this city. It is of Dents construction and cost five hundred dollars. By its movements the station clocks at

Delaware, Susquehanna and Hornellsville are regulated and these become the standards for the divisions of the road terminating respectively at those points. The following is a copy of the standing order issued to the telegraph operators on the line, for their instruction in regard to transmitting the standard time.

NEW YORK AND ERIE RAILROAD.

Office of Superintendent of Telegraph,
Elmira, Nov. 22. 1852. }

TO ALL TELEGRAPH OPERATORS:—

After the present week, the line will be connected through at the Delaware, Susquehanna, and Hornellsville Offices, every day, (Sundays excepted), at precisely 4 minutes before 12 M., for the purpose of sending the time to all offices. At precisely 4 minutes before 12 o'clock, the Operator who is to send the time, will commence beating seconds with his key, and will continue to do so until 12 o'clock, in order to give every Operator an opportunity to adjust his instrument. At precisely 12 o'clock, he will commence saying "i i," which he will continue to repeat for one minute, immediately after which he will sign. The connecting offices will then disconnect each division of the line, and after 4 minutes past twelve business will go on as usual. It must be understood, by those interested, that all other business must be suspended, and that no operator, except the one who is sending the time, will be allowed to open the circuit after 4 minutes before 12, until 4 minutes past 12, under any circumstances whatever. In case any Operator is unable to get the writing from the one who is sending the time, he must be very careful to keep the circuit closed during the time specified above, even though he may suppose the time is not being sent.

L. G. TILLOTSON, Superintendent.

Approved.

CHARLES MINOT, Supt. N. Y. and E. Railroad.

Virginia.

Northwestern, Va., Railroad.—The Parkersburg (Va.) Gazette states that unusual vigor and activity characterize the operations on this road at present. The estimates show a larger amount of work for the last month, than was ever before performed within the same length of time, and on the 12th inst. \$90,000 were paid out at Parkersburg for work during the month.

Railroad Meeting in Alabama.

A railroad convention was held at Prattsville on the 12th ult., at which resolutions were passed to the effect that a railroad from the city of Montgomery by the most direct and practicable route to Selma, through the county of Autauga, extending from thence to the Mississippi line, in the direction of the chain of railroads which are soon to connect the Atlantic and Pacific oceans, and that a railroad running on the most direct and practicable route from the city of Montgomery, through the counties of Autauga and Shelby, and from thence through the north-western counties of the state, to some point on the Tennessee river, is of the utmost importance in effecting a development of the mineral resources of the state of Alabama.

Committees were appointed to take the necessary steps to procure a charter and to attend conventions at Elyton on the 24th of August, and at Montgomery on the 2d of November, to prepare a

charter and to aid in the organization of a company to prosecute the work.

American Railroad Journal.

Saturday, September 3, 1883.

Mr. Stephenson, the celebrated English engineer, at a dinner given him on his arrival at Montreal, expressed himself as favoring the consolidation of railroad lines, and especially lines connecting the place to which they lead, and maintains that it is beneficial to all parties. He gave a striking illustration of the extent to which this has been carried in England. The London and Birmingham railway which had an original length of 112 miles, was increased to 700, by amalgamating with other lines; and the Midland counties originally but 60 miles, but already augmented to an extent of 500 miles, now contemplate a union, which will make them a single company of some 1,300 miles, and a bill is now pending in Parliament for the purpose.

New Car Stove.

In the Canadian department of the Crystal Palace we notice a stove, designed for railroad cars, by H. Ruttan, of Cobourg, Canada West. It is constructed not for heating, as used in the ordinary sense, but for warming fresh air to a genial temperature, and for a rapid and efficient ventilation. It is equally adapted for halls, offices, drawing rooms, or other house apartments, or for railroad cars, for which it has been used and successfully tested on the Rochester and Syracuse railroad. In any house apartment, fitted for the purpose, it is claimed to throw over 400 cubic feet of fresh air per minute, and according to the amount of air kept in circulation, at one half the expense for fuel. From the motion of railroad cars its action is increased so as to renew the air in an ordinary car at the usual speed every four minutes.

We can attest from our own observation that it is very compact and very ornamental in appearance. Information in regard to it may be had of the inventor at the Crystal Palace, or of John Johnson & Brother, 111 East Eighteenth street, in this city.

Stock and Money Market.

The condition of the Stock and Money Market is not on the whole much changed since last week. There have been considerable fluctuations in the mean time, with a corresponding variation in the price of fancy stocks. While money has been gradually becoming easier, there is no decided tendency toward a greater abundance. The apprehension that a tight market may be before us, has a tendency to check operations on time, and induces people to take measures to strengthen themselves in case matters take an adverse turn. The public mind is unsettled as to the future, and is exceedingly cautious in its action. To-day money is apparently abundant; to-morrow it can hardly be had on any terms. Lenders, though they refuse to take long contracts, seem determined to keep up the rates on short loans; so that, though there may be no actual scarcity, rates continue high, even upon short and well-secured contracts. In the meantime, trade is very active, and payments from the country are made with great promptness. Crops of all kinds bid fair to be

Railway Share List.

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

| NAME OF COMPANY. | Miles open. | Capital paid in. | Funded debt. | Tot. cost of road and equipment. | Gross Earnings for last official year. | Net Earnings for last official yr. | Dividend for do. | Price of Shares |
|-------------------------------------|-------------|------------------|--------------|----------------------------------|--|------------------------------------|------------------|-----------------|
| Atlantic and St. Lawrence... Maine. | 150 | 1,538,100 | 2,973,700 | 5,150,278 | 254,748 | 113,520 | none | 100 |
| Androscoggin and Kennebec.. | 55 | 809,878 | 1,016,500 | 2,064,458 | 140,561 | 80,053 | none | 36 |
| Kennebec and Portland.... | 72 | 876,741 | 800,000 | 2,180,000 | 133,338 | ..... | none | 45 |
| Port., Saco and Portsmouth.. | 51 | 1,355,500 | 123,884 | 1,459,384 | 208,669 | ..... | 6 | 100 |
| York and Cumberland..... | 20 | 285,747 | 341,100 | 713,605 | 23,946 | 11,256 | none | 40 |
| Boston, Concord and Montreal. N. H. | 93 | 1,649,278 | 622,200 | 2,540,217 | 150,538 | 79,659 | none | 35 |
| Concord | 35 | 1,485,000 | none. | 1,485,000 | 305,805 | 141,836 | 8 | 108 |
| Cheshire | 54 | 2,078,625 | 720,900 | 3,002,094 | 287,768 | 55,266 | 5 | 47 |
| Northern | 82 | 3,016,634 | ..... | ..... | 328,782 | 163,075 | 5 | 57½ |
| Manchester and Lawrence.... | 24 | 717,543 | ..... | ..... | ..... | ..... | 6½ | 97 |
| Nashua and Lowell..... | 15 | 600,000 | none. | 651,214 | 132,545 | 51,513 | 8 | 109 |
| Portsmouth and Concord.... | 47 | ..... | ..... | 1,400,000 | ..... | ..... | none | ..... |
| Sullivan..... | 26 | ..... | ..... | 673,500 | ..... | ..... | none | 12 |
| Connecticut and Passumpsic.. Vt. | 61 | 1,097,600 | 550,000 | 1,745,616 | ..... | ..... | none | 40 |
| Rutland | 120 | 2,486,000 | 2,429,100 | 5,577,467 | 495,397 | 266,539 | none | 30 |
| Vermont Central..... | 117 | 8,500,000 | 3,500,000 | 12,000,000 | ..... | ..... | ..... | 14½ |
| Vermont and Canada..... | 47 | 1,500,000 | ..... | 1,500,000 | Leased to the Vt. Cent. | ..... | ..... | 101 |
| Western Vermont..... | 51 | 392,000 | 700,000 | ..... | Recently opened. | ..... | none | ..... |
| Vermont Valley | 24 | ..... | ..... | ..... | ..... | ..... | none | ..... |
| Boston and Lowell..... Mass. | 28 | 1,830,000 | ..... | 1,995,249 | 388,108 | 130,881 | 7½ | 98 |
| Boston and Maine..... | 83 | 4,076,974 | 150,000 | 4,092,927 | 659,001 | 338,215 | 7 | 105½ |
| Boston and Providence..... | 53 | 3,160,390 | 390,000 | 3,546,214 | 469,656 | 227,434 | 6 | 86½ |
| Boston and Worcester..... | 69 | 4,500,000 | 425,000 | 4,845,967 | 758,819 | 331,296 | 7 | 101 |
| Cape Cod branch..... | 28 | 421,295 | 171,800 | 633,006 | 60,743 | 30,056 | 2½ | 40 |
| Connecticut River..... | 52 | 1,591,100 | 193,500 | 1,801,946 | 229,004 | 72,028 | 5 | 55 |
| Eastern..... | 75 | 2,850,000 | 500,000 | 3,120,391 | 488,793 | 241,017 | 7½ | 92 |
| Fall River..... | 42 | 1,050,000 | none. | 1,050,000 | 229,445 | 99,589 | 8 | 104 |
| Fitchburg..... | 66 | 3,540,000 | 112,305 | 3,623,073 | 574,574 | 232,787 | 6 | 98½ |
| New Bedford and Taunton.. | 20 | 500,000 | none. | 520,475 | 164,230 | 43,950 | 7½ | 117 |
| Norfolk County..... | 26 | 547,015 | 819,743 | 1,245,927 | 67,251 | 23,415 | ..... | 62 |
| Old Colony..... | 45 | 1,964,070 | 282,300 | 2,293,534 | 322,213 | 101,510 | none | 93 |
| Taunton Branch..... | 12 | 250,000 | none. | 307,136 | 137,406 | 24,399 | 8 | ..... |
| Vermont and Massachusetts.. | 77 | 2,140,536 | 1,001,500 | 3,203,333 | 218,679 | 18,648 | none | 17 |
| Worcester and Nashua..... | 45 | 1,134,000 | 171,210 | 1,321,945 | 162,109 | 66,900 | 4½ | 59½ |
| Western..... | 155 | 5,150,000 | 5,319,520 | 9,953,759 | 1,339,873 | 683,194 | 6½ | 99½ |
| Stonington..... R. I. | 50 | ..... | ..... | ..... | ..... | ..... | ..... | 62 |
| Providence and Worcester.. | 40 | 1,457,500 | 300,000 | 1,731,498 | 253,690 | 139,514 | 6 | ..... |
| Canal..... Conn. | 45 | ..... | ..... | ..... | ..... | ..... | 10 | ..... |
| Hartford and New Haven.... | 62 | 3,000,000 | 472,000 | ..... | 600,408 | 332,223 | none | 126 |
| Housatonic..... | 110 | ..... | ..... | 2,500,000 | 329,041 | 168,902 | none | ..... |
| Hartford, Prov. and Fishkill.. | 50 | ..... | ..... | In progress | 69,629 | ..... | none | ..... |
| New London, Wil. and Palmer | 66 | 558,861 | 800,000 | 1,511,111 | 114,410 | ..... | ..... | ..... |
| New York and New Haven.... | 61 | 3,000,000 | 1,641,000 | 4,978,487 | 806,713 | 428,173 | 7 | 104 |
| Naugatuck | 62 | 926,000 | 440,000 | ..... | ..... | ..... | ..... | ..... |
| New London and New Haven. | 55 | 750,500 | 650,000 | 1,380,610 | Recently opened. | ..... | none | 45 |
| Norwich and Worcester..... | 54 | 2,121,110 | 701,600 | 2,596,488 | 267,561 | 116,965 | 4½ | 52½ |
| Buffalo and New York City.. N. Y. | 91 | 900,000 | 1,550,000 | 2,550,500 | Recently opened. | ..... | none | 85 |
| Buffalo, Corning and N. York. | 132 | ..... | ..... | In progress | ..... | ..... | none | 65 |
| Buffalo and State Line..... | 69 | 879,636 | 872,000 | 1,921,270 | Recently opened. | ..... | ..... | 130 |
| Canandaigua and Niagara F.. | 50 | ..... | ..... | In progress | ..... | ..... | ..... | ..... |
| Canandaigua and Elmira.... | 47 | 425,509 | 582,400 | 987,627 | 76,760 | 39,360 | none | 68 |
| Cayuga and Susquehanna.... | 35 | 687,000 | 400,000 | 1,070,786 | 74,241 | 23,496 | none | ..... |
| Erie, (New York and Erie)... | 464 | 9,612,995 | 24,003,865 | 31,301,806 | 3,537,766 | 1,691,623 | 7 | 74½ |
| Hudson River..... | 144 | 3,740,515 | 7,046,395 | 10,527,654 | 1,063,659 | 338,783 | none | 69½ |
| Harlem..... | 130 | 4,725,250 | 977,463 | 6,102,935 | 681,445 | 324,494 | 5 | 56 |
| Long Island..... | 95 | 1,875,148 | 516,246 | 2,446,391 | 205,068 | 44,070 | none | 32½ |
| New York Central..... | 504 | 22,858,600 | 2,111,824 | ..... | ..... | ..... | ..... | 114½ |
| Ogdensburg (Northern).... | 118 | 1,579,969 | 2,969,760 | 5,133,834 | 480,137 | 195,847 | none | 28½ |
| Oswego and Syracuse..... | 35 | 350,000 | 201,500 | 607,803 | 90,616 | 48,609 | 4 | 70 |
| Plattsburg and Montreal.... | 23 | 174,042 | 131,000 | 349,775 | Recently opened. | ..... | none | ..... |
| Rensselaer and Saratoga.... | 25 | 610,000 | 25,000 | 774,495 | 213,078 | 96,737 | ..... | ..... |
| Rutland and Washington.... | 60 | 850,000 | 400,000 | 1,250,000 | Recently opened. | ..... | ..... | ..... |
| Saratoga and Washington.... | 41 | 899,800 | 940,000 | 1,832,945 | 173,545 | 135,017 | none | 30 |
| Troy and Rutland..... | 32 | 237,690 | 100,000 | 329,577 | Recently opened. | ..... | ..... | 33 |
| Troy and Boston..... | 39 | 430,936 | 700,000 | 1,043,357 | Recently opened. | ..... | none | ..... |
| Watertown and Rome..... | 96 | 1,011,940 | 650,000 | 1,693,711 | 225,152 | 116,706 | 8 | 109 |
| Camden and Amboy..... N. J. | 65 | 1,500,000 | ..... | 4,327,425 | 1,988,385 | 478,413 | 10 | 150 |
| Morris and Essex..... | 45 | 1,022,420 | 128,000 | 1,220,320 | 149,941 | 78,252 | 4 | ..... |
| New Jersey..... | 31 | 2,197,840 | 476,000 | 3,245,720 | 603,942 | 316,259 | 10 | 148 |
| New Jersey Central..... | 63 | 986,106 | 1,500,000 | 2,379,880 | 260,899 | 124,740 | 3½ | ..... |
| Cumberland Valley..... Penn. | 56 | 1,184,500 | 13,000 | 1,265,143 | 118,617 | 76,890 | 5 | ..... |
| Erie and North East..... | 20 | 600,000 | ..... | 750,000 | Recently opened. | ..... | ..... | 125 |
| Harrisburgh and Lancaster.. | 36 | 783,950 | 688,051 | 1,609,494 | 200,249 | 106,932 | 8 | ..... |
| Philadelphia and Reading.... | 95 | 6,666,332 | 10,427,800 | 17,141,987 | 2,480,826 | 1,251,987 | 7 | 84 |
| Philad., Wilmington and Balt. | 98 | 3,850,000 | 2,403,276 | 6,813,839 | 667,785 | 388,501 | 5 | 77½ |

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

| NAME OF COMPANY. | Miles open. | Capital paid in. | Funded debt. | Tot. cost of road and equipm't. | Gross Earnings for last official year. | Net earnings for last official yr. | Dividend for do. | Price of shares. |
|--------------------------------|-------------|------------------|--------------|---------------------------------|--|------------------------------------|------------------|------------------|
| Pennsylvania Central..... | Penn. 250 | 9,768,155 | 5,000,000 | 13,600,000 | 1,943,827 | 617,625 | .... | 98 |
| Philadelphia and Trenton.... | " 30 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Pennsylvania Coal Co..... | " 47 | ..... | ..... | ..... | ..... | ..... | ..... | 110 1/2 |
| Baltimore and Ohio..... | Md. 381 | 9,188,300 | 9,827,123 | 19,542,307 | 1,325,563 | 615,384 | 7 | 61 |
| Washington branch..... | " 38 | 1,650,000 | ..... | 1,650,000 | 348,622 | 216,237 | 8 | .... |
| Baltimore and Susquehanna.. | " 57 | ..... | ..... | ..... | 413,673 | 152,536 | ..... | ..... |
| Alexandria and Orange..... | Va. 65 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Manassas Gap..... | " 27 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Petersburgh..... | " 64 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Richmond and Danville..... | " 73 | 1,372,324 | 200,000 | In prog. | ..... | ..... | ..... | ..... |
| Richmond and Petersburg.. | " 22 | 685,000 | ..... | 1,100,000 | 122,861 | 74,113 | none | ..... |
| Rich., Fred. and Potomac.... | " 76 | 1,000,000 | 503,006 | 1,531,238 | 254,376 | 113,256 | 7 | 105 |
| South Side..... | " 62 | 1,328,722 | 800,000 | In prog. | ..... | ..... | ..... | ..... |
| Virginia Central..... | " 107 | 1,400,100 | 446,036 | In prog. | 176,485 | 74,902 | none | ..... |
| Virginia and Tennessee..... | " 60 | 3,000,000 | 1,500,000 | In prog. | ..... | ..... | none | ..... |
| Winchester and Potomac.... | " 32 | 180,000 | 120,000 | 416,532 | 89,776 | ..... | 12 | ..... |
| Wilmington and Raleigh..... | N. C. 161 | 1,338,878 | 1,134,698 | 2,965,574 | 610,038 | 153,898 | 6 | ..... |
| Charlotte and South Carolina. | S. C. 110 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Greenville and Columbia..... | " 140 | 1,004,231 | 300,000 | In prog. | ..... | ..... | ..... | ..... |
| South Carolina..... | " 242 | 3,858,840 | 3,000,000 | 7,002,396 | 1,000,717 | 609,711 | 7 | 125 |
| Wilmington and Manchester.. | " 110 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Georgia Central..... | Ga. 191 | 3,100,000 | 306,187 | 3,378,132 | 945,508 | 508,625 | 8 | 115 |
| Georgia..... | " 211 | 4,000,000 | 1,214 | ..... | 934,424 | 456,468 | 7 1/2 | ..... |
| Macon and Western..... | " 101 | 1,214,283 | 168,000 | 1,596,283 | 296,584 | 153,697 | 9 | 109 |
| Muscogee..... | " 71 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| South Western..... | " 50 | 586,887 | 150,000 | 743,525 | 129,395 | 71,535 | 8 | ..... |
| Alabama and Tennessee River | Ala. 55 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Memphis and Charleston..... | " 93 | 776,259 | 400,000 | In prog. | ..... | ..... | ..... | ..... |
| Mobile and Ohio..... | " 33 | 879,868 | ..... | In prog. | ..... | ..... | ..... | ..... |
| Montgomery and West Point.. | " 88 | 688,611 | ..... | 1,330,960 | 173,542 | 76,079 | 8 | ..... |
| Southern..... | Miss. 60 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| East Tennessee and Georgia.. | Tenn. 80 | 835,000 | 541,000 | In prog. | ..... | ..... | ..... | ..... |
| Nashville and Chattanooga... | " 125 | 2,093,814 | 850,000 | In prog. | ..... | ..... | ..... | ..... |
| Covington and Lexington..... | Ky. | 1,430,150 | 1,100,000 | In prog. | ..... | ..... | ..... | ..... |
| Frankfort and Lexington..... | " 29 | 357,218 | ..... | 584,902 | 87,421 | 44,250 | ..... | 80 |
| Louisville and Frankfort..... | " 65 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Maysville and Lexington..... | " 100 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Cleveland and Pittsburgh..... | Ohio. 100 | 1,239,450 | 1,371,000 | 2,963,756 | 194,429 | 123,306 | 6 | 96 |
| Cleveland, Painesv. and Ash.. | " 71 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cleveland and Columbus..... | " 135 | 3,027,000 | 408,200 | 3,655,000 | 777,793 | 483,454 | 12 | 132 |
| Columbus, Piqua and Indiana.. | " 46 | ..... | ..... | 2,000,000 | ..... | ..... | ..... | 98 |
| Columbus and Lake Erie..... | " 61 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Cincinnati, Ham. and Dayton | " 60 | 1,694,000 | 906,000 | 2,600,000 | 321,793 | 200,967 | ..... | 105 |
| Cincinnati and Marietta..... | " 40 | 310,000 | 550,000 | 925,000 | ..... | ..... | ..... | 72 1/2 |
| Dayton and Western..... | " 20 | ..... | ..... | In prog. | ..... | ..... | ..... | 80 |
| Dayton and Michigan..... | " 36 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Eaton and Hamilton..... | " 31 | ..... | ..... | ..... | ..... | ..... | ..... | 70 |
| Greenville and Miami..... | " 37 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Hillsboro..... | " 84 | 2,370,784 | ..... | 2,634,157 | 526,746 | 314,670 | 10 | 119 1/2 |
| Mansfield and Sandusky..... | " 167 | 900,000 | 1,000,000 | 1,855,000 | 540,518 | 118,401 | ..... | 95 |
| Mad River and Lake Erie..... | " 57 | 2,387,200 | 1,767,000 | 4,110,148 | ..... | ..... | ..... | ..... |
| Ohio Central..... | " 57 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Ohio and Mississippi..... | " 187 | 1,750,700 | 2,450,000 | ..... | ..... | ..... | ..... | 97 |
| Ohio and Pennsylvania..... | " 187 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ohio and Indiana..... | " 187 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Scioto and Hocking Valley... | " 87 | 552,000 | 800,000 | 1,317,140 | ..... | ..... | ..... | ..... |
| Toledo, Norwalk and Cleve'd | " 54 | 1,092,137 | 119,500 | 1,257,714 | 237,506 | 135,363 | 15 | ..... |
| Xenia and Columbus..... | " 31 | ..... | ..... | In prog. | ..... | ..... | ..... | ..... |
| Evansville and Illinois..... | Ind. 131 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Indiana Central..... | " 83 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Indiana Northern..... | " 83 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Indianapolis and Bellefontaine | " 62 | ..... | ..... | In prog. | ..... | ..... | ..... | 80 |
| Lawrenceburg and Ind..... | " 88 | 1,650,000 | 750,000 | 2,400,000 | 516,414 | 268,075 | 10 | 85 |
| Lafayette and Indianapolis.... | " 40 | ..... | ..... | In prog. | ..... | ..... | ..... | 70 |
| Madison and Indianapolis..... | " 72 | 632,387 | 663,100 | 1,353,019 | 105,944 | 71,446 | 4 | 108 |
| Peru and Indianapolis..... | " 72 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Terre Haute and Indianapolis | " 72 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Rock Island and Chicago..... | " 282 | 4,000,000 | 4,067,396 | 8,614,193 | ..... | ..... | ..... | 110 1/2 |
| Chicago and Mississippi..... | " 282 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Illinois Central..... | Ill. .... | ..... | ..... | ..... | ..... | ..... | ..... | 136 |
| Galena and Chicago..... | " 92 | 1,932,361 | 500,000 | In prog. | 478,548 | 286,152 | ..... | 124 |
| Michigan Southern..... | Mich. 315 | 2,499,410 | 2,629,000 | 6,430,246 | 592,187 | 293,046 | ..... | 125 |
| Michigan Central..... | " 282 | 4,000,000 | 4,067,396 | 8,614,193 | ..... | ..... | ..... | 110 1/2 |
| Pacific..... | Mo. .... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |

very abundant. The health of the country is unusually good (with one melancholy exception), so that all the elements of prosperity seem to exist in uncommon profusion. The only real cause of a tightness in the money market are the immense calls for our railroads; but with favorable advices from California and Europe, these calls may be met with comparative ease. A very considerable portion of the money expended in the construction of our railroads, goes into the hands of our farmers for supplies of provisions, etc., and is again to return to the city in the regular channels of trade.

The foreign demand for bonds is still light, the season for active operations in these not being yet commenced. It is believed, however that the demand during the dull season for the present, is fully equal to the demand for the same time the past year.

The bank returns for the past week are regarded as favorable. The following statement will show their comparative condition for the weeks ending Aug. 20, and 27.

| | Loans. | Specie. |
|---------------|--------------|--------------|
| Aug. 20..... | \$93,866,976 | \$11,092,552 |
| Aug. 27..... | 92,386,953 | 11,319,047 |
| Increase..... | ..... | \$226,496 |
| Decrease..... | \$1,480,023 | ..... |
| | Deposits. | Circulation. |
| Aug. 20..... | \$57,317,718 | \$9,414,896 |
| Aug. 27..... | 57,431,808 | 9,427,191 |
| Increase..... | \$114,090 | \$12,296 |

The coin on hand in the Banks and Sub-Treasury, is as follows;

| | Sub-Treasury. | Banks | Total. |
|--------------|---------------|-------------|--------------|
| Aug. 6..... | \$8,406,000 | \$9,746,000 | \$18,152,000 |
| Aug. 27..... | 9,024,250 | 11,319,047 | 20,343,305 |

The following statement will show their condition as by their several reports since February, 26th 1853.

| | Loans. | Specie. |
|--------------------|--------------|--------------|
| Feb. 26, 1853..... | \$95,274,876 | \$8,991,630 |
| June 11, 1853..... | 95,520,656 | 12,174,509 |
| Aug. 6, 1853..... | 97,899,617 | 9,746,452 |
| Aug. 13, 1853..... | 92,562,277 | 10,664,618 |
| Aug. 20, 1853..... | 93,866,970 | 11,092,552 |
| Aug. 27 1853..... | 92,386,953 | 11,319,047 |
| | Circulation. | Deposits. |
| Feb. 26, 1853..... | \$9,274,025 | \$57,556,507 |
| June 11, 1853..... | 9,084,106 | 59,078,171 |
| Aug. 6, 1853..... | 9,510,465 | 60,994,568 |
| Aug. 13, 1848..... | 9,451,945 | 58,166,712 |
| Aug. 20, 1853..... | 8,414,696 | 56,817,718 |
| Aug. 27, 1853..... | 9,427,191 | 57,431,808 |

The redemption of the debt of the general government goes on steadily. The amount redeemed from the 13th to the 20th of August is as follows.

| | Loans outstanding. | Redeemed since. | Outstanding. |
|----------------|--------------------|-----------------|----------------|
| Aug. 13, 1853. | ..... | ..... | Aug. 50, 1853. |
| 1842..... | \$7,950,277 | \$22,000 | \$7,928,277 |
| 1843..... | 548,900 | 15,500 | 533,400 |
| 1846..... | 4,920,489 | 29,200 | 4,891,289 |
| 1847..... | 23,948,100 | 112,400 | 23,835,700 |
| 1848..... | 15,317,400 | 20,450 | 15,296,950 |
| | Texas Indem. | Do. not issued. | 5,000,000 |
| 5,000,000 | ..... | ..... | 5,000,000 |

| | | | |
|---------------------------------|--------------|-----------|--------------|
| Total..... | \$62,684,117 | \$199,560 | \$62,485,567 |
| Old Funded debt..... | ..... | ..... | \$114,118 |
| Treasury Notes outstanding..... | ..... | ..... | 115,011 |
| Debt of Corporate Cities..... | ..... | ..... | 720,000 |
| Total..... | ..... | ..... | \$63,434,697 |

This shows a reduction of about \$6,000,000 since Jan. 1.

If the holders of the government securities would surrender these at anything like fair rates the whole debt might be paid from the rapidly accruing surplus in the Treasury in two or three years.

The imports for the same time have been as follows:

| | 1852. | 1853. |
|----------------|-----------|-----------|
| Dry Goods..... | 9,347,060 | 8,890,949 |
| Other..... | 6,241,216 | 7,800,884 |

Total.....15,588,276 16,191,583

Included in the general merchandise for the week, are \$440,080 in iron, (of which \$219,187 were rails.

The following is the coinage of the mint for the month of August.

| Gold. | Pieces. | Amount. |
|---------------------|---------|----------------|
| Double Eagles..... | 83,730 | \$1,674,600 00 |
| Eagles..... | 22,005 | 220,050 00 |
| Half Eagles..... | 26,860 | 134,300 00 |
| Quarter Eagles..... | 108,264 | 270,660 00 |
| Gold Dollars..... | 215,121 | 215,121 00 |

Total.....\$1,514,731 00
In bars.....605,198 85

Total.....\$2,119,929 85

SILVER.

Total.....1,802,000 \$850,000 00

COPPER.

Cents.....559,460 \$5,594 60

GOLD BULLION DEPOSITED.

From California.....\$4,469,000
From other sources.....43,000—\$4,512,000
Gold in July.....\$3,505,331
Gold in August.....\$4,512,000
Silver bullion.....\$860,000

The following is a comparative statement of the deposits at the Mint during the first 8 months of 1851, '52 and '53.

| | 1851. | 1852. | 1853. |
|-------------|-----------|-----------|-----------|
| Jan..... | 5,071,669 | 4,161,688 | 4,962,097 |
| Feb..... | 3,004,970 | 3,010,222 | 3,548,523 |
| March..... | 2,880,271 | 3,892,156 | 7,533,752 |
| April..... | 2,878,353 | 3,691,087 | 4,766,000 |
| May..... | 3,269,491 | 4,335,578 | 4,425,000 |
| June..... | 3,637,560 | 6,689,474 | 4,533,000 |
| July..... | 3,127,517 | 4,193,880 | 3,491,000 |
| August..... | 4,135,312 | 2,671,563 | 5,370,800 |

Total....\$28,005,143 \$32,045,598 \$38,631,172

COINAGE OF 1853.

| | Gold. | Silver. | Total. |
|--------------|-----------|---------|--------------|
| January..... | 4,809,888 | 93,750 | 4,906,998 79 |
| Feb..... | 2,931,280 | 97,300 | 3,030,580 31 |
| March..... | 5,693,808 | 163,800 | 6,861,739 26 |
| April..... | 5,305,080 | 419,007 | 5,726,598 54 |
| May..... | 2,823,506 | 608,509 | 3,431,135 19 |
| June..... | 4,774,246 | 650,000 | 5,427,918 32 |
| July..... | 4,459,469 | 710,000 | 5,171,301 28 |
| Aug..... | 2,119,920 | 850,000 | 2,975,523 60 |

Total...32,916,706 3,592,366 \$36,541,790 29

The copper coinage during the same period has been \$32,718 89, which makes a part of the above aggregate.

The export of specie for the year, up to August 27, has been as follows:

Total 13th to 27th Aug.....345,034 09
Previously reported.....13,395,020 49

Total for 1853.....\$13,740,054 58

Showing a coinage of \$23,000,000 during the year over exports, a large portion of which must have gone into circulation.

Paterson Locomotives.

The New Jersey Locomotive and Machine company, at Paterson, are now engaged upon an extensive order of freight and passenger engines for the Columbia railroad of Pennsylvania. These engines conform to the design established, for some time, by this company for their outside connected engines, and which presents some particular merits of arrangement and construction worthy of notice. The attachment of the cylinders to a round instead of flat sided smoke box, and to sheets of double thickness, secures, we believe, a permanence not attained in many outside connections. The heavy cast iron bed plate is dispensed with, the truck pintle being secured against the under side of the smoke box. The frame is strongly braced immediately before and behind the cylinders and being bent downwards in front of the main driving axle to the level of the center of the cylinder, makes a direct distribution of the strain in working, so as to prevent all unequal strains upon the cylinders. As the boiler must expand when heated, and as it is firmly tied to the frame at the forward end, the "expansion brace" is introduced at the back end to connect the fire box with the frame, by which, although the boiler is firmly held vertically and laterally, it can expand freely in the direction of its length to the extent of one quarter of an inch, thereby relieving the seams of rivets around the crown sheet from any strain.

The form of the boiler is of the best description, having the angles of the furnace rounded and having a high wagon top crown, giving an abundance of steam room. To provide for an equal draught of steam, all the boilers have two domes, with a steam pipe fed one half in each. The valve motion is the shifting open link suspended on a principle peculiar to these engines and securing the nearest practicable equality in the steam admissions. The truck frames are of the center-bearing kind, and are made with the most substantially trussed bodies. The suspension of the driving springs upon the equalizing levers is made so as to gain the greatest width of firebox between the sides of the frame, and the jaws are made so as to afford much stiffness to the frame, besides admitting of easy repair if they should become broken or bent.

Of the materials used in these engines we believe they are of the best quality. The boiler iron used is of the best Pennsylvania manufacture, costing on an average six and a half cents per pound. We have a specimen of cast iron broken from one of the cylinders, poured from Stirling pig, which exhibits a fibrous structure quite remarkable for a casting. It was handed us by Mr. Samuel Smith, the manager of the foundry. The company are putting in an average of two tons of best brazed copper tubes in each boiler, costing upwards of \$1500.

They have in some cases made a successful application of wrought iron tubes having copper ends brazed on for two inches at the furnace end. Of a large number sent out upon the Erie railroad none have given trouble by reason of leakage. The use of brass tubes by this company show some peculiar results worthy the attention of builders and of those otherwise interested in the success of these tubes. It appears that when the tubes were placed quite close together in the boiler, and put under a hard heat while new and clean

from scale or soot, they became bent and broken near their forward ends. The great heat applied to tubes so nearly in contact, probably caused a dispersion of water and an exposure to over heating, which brass could not so well stand as copper or iron. The brass tubes being thinnest next their forward ends, would naturally, under a hard heat, give out soonest there.

This company are turning out at the rate of 30 engines per year, and under the present demand for engines, generally have a years' work ordered ahead.

Baltimore and Ohio Passenger Engines.

We published recently a brief description of these efficient and serviceable engines, stating also what they had achieved in their performance over the mountain grades of the great iron pathway of the Alleghenies. We have seen a short paragraph to the effect that the Baltimore and Ohio company own one hundred and forty three locomotives many of which are of a capacity to run eighty miles per hour. Leaving this statement of speed for what it is worth, we will state that in May last, 141 of these engines were running on chilled wheels, the larger portion being fitted with the removable slip tire. The substantial pattern of engines described by us were provided with the removable chilled tire. The fastest and heaviest passenger engines run upon chilled tires, and out of some 1500 used on different engines, but two, as we have before stated, have ever broken. The failure of these can be easily accounted for in an insufficient thickness of iron, and in view of this fact, which can be established beyond doubt, we believe no mechanical improvement can boast of more success. The Master of Machinery states that these tires on the passenger engines continue to run seventy five thousand miles before being worn out, while on the level road between Baltimore and Washington they have been known to run 100,000 miles, before becoming so badly worn as to require renewal. 50,000 miles is an average duration of these tires under the heavy freight and stock engines, running over the mountains.

We would advise master mechanics of our railroads, when traveling South, to visit the Mount Clare shops of the Baltimore and Ohio road, and witness the application and operation of these tires. They will find it a matter of much interest to see the condition of the tires in use and of those taken from under the wheels, to see the facility with which they are fitted and applied, and to learn the great economy which has attended their use. They will find in Mr. Hayes, a gentleman of sound views upon the subject of locomotives, and able and willing to extend to them every possible opportunity for information.

Montreal and Bytown Railroad.

We are happy to inform our readers that at a special meeting of the municipal council of the county of Two Mountains, held on Monday last, it was determined to adopt the Montreal and Bytown line, and the council thereupon unanimously passed a by-law authorizing the mayor to borrow £62,000 to aid in the undertaking. The popular vote to be taken on this by-law was fixed for the 19th and 20th day of September next. This, with the sum of £225,000 from the city of Montreal, and what is expected from our municipalities, leaves no doubt of this line being put under contract at an early day.—*Montreal Gazette.*

Boston Locomotive Works.

The origin and progress of this establishment has been a fair example of that of the railroad system of America. Although not the oldest works in operation, it was commenced and conducted before railroads had attained the importance which they now possess, and when railroads and locomotives were mysteries to a large portion of our people. But under the recent order of things establishments like the above have multiplied, aiding and deriving in return, their growth and support from railroads. The business of building locomotives has now become a large and important branch of industry, employing in the United States alone, over 6000 hands, who receive \$2,700,000 yearly for labor, and turn out \$8,000,000 in value of manufactured products. The capital invested in the business at the present time is not probably less than \$3,000,000. There are full one thousand locomotives built per annum, sufficient for replacing the depreciation of all the engines in use, and for the equipment of nearly three thousand miles of railroad, in addition.

Prominent in this branch of business stands the above company, whose long experience and extensive and powerful establishment have made them known wherever American railroads have penetrated.

The work of building locomotives commenced in Boston, in 1840, by Holmes Hinkley and Gardner P. Drury.

The business of their establishment previous to 1840 was confined to building steam engines, and other common machinery employing from 40 to 50 men, and turning out from 40 to \$50,000 worth of work in a year. The business was done in one building say, 80×40 feet. In 1840 the first locomotive was commenced upon—the construction of which was considered a mysterious business at the time; as the Locks and Canals Co., at Lowell, was the only establishment where any locomotives had been built in Massachusetts. The first engine put on to the track by the Boston Locomotive Works then carried on by Hinkley and Drury, was a six wheeled engine of outside connections, with one pair of drivers and a truck, weighing about 13 tons, which was considered a heavy class at that time. This engine being of quite a different model from the Stephenson engines, which were built by the Locks and Canals Company, there was great trouble in disposing of it, even at two-thirds its cost—but it was finally purchased by the Eastern Railroad Company,—and is yet in operation on the Portland end of that road. It worked so successfully that it induced the builders to set up six locomotives, of the same model, before they received any orders. But before they were completed they were all contracted for—besides several others of different model; so that in 1842 ten were delivered. This being so great an increase of the business it was found necessary to increase the capacity of the buildings, by adding another shop 100×50. This rate of delivery continued through 1843 and 1844. In 1845 the deliveries were twenty-six; the most of them eight wheeled engines of about 16 tons each. This increase of the business called for further addition to the shops, and another building was erected 130×65 feet.

In 1846 thirty were delivered, and in 1847, fifty-five, which called for still further increase of

shop room; and there were added, one range of buildings 430×80 and an addition to the old range of 170×65, and also an L of 50×40. Making the buildings as they stand; one range 430×80, and another range 400×65, with various out-buildings. The buildings and yard-room covering a surface of about four acres.

These facilities of shop room enabled the company to employ about 400 men; turning out about seven locomotives a month besides other railroad work.

The styles of engines built for the first five years of the operation of the establishment were the outside connected engine of two or four drivers and a truck frame, and a pattern of freight engine resting wholly on four coupled drivers. These were simple and strong engines and large numbers of them are yet in use. In 1845 the first inside connected engines were completed, and in a short time the crank engine was the leading style coming out of this establishment. They combined much originality of design and construction in the valve motions, pumps, truck frames and other parts, and proved a determination on the part of the builders to keep up with the progress of the mechanical science of the day. And since that time improvements have been regularly carried out in each successive lot of engines, by which they have approached perfection to a degree that would once have been little dreamed of.

On the 13th of March 1848, the works which had so long been carried on by Hinkley and Drury were incorporated by act of the Massachusetts legislature, under an organization bearing the present name and style of the company. Mr. Drury, who, for so long a time, was identified with the success of the works, has since withdrawn, while Mr. Hinkley still retains his connection with the company in the capacity of president and superintendent.

Under the present organization, and during the hard times of the years 1849, 50, and 51, orders for locomotives decreased, so that the average deliveries for those three years were only at the rate of 43 a year.

In 1852 business revived again and the deliveries that year were 70.

The present year, 1853, the deliveries will be over 80, and the demand has been such, that twice that number could have been disposed of, if the Co. had possessed facilities for building so many.

The whole number of hands employed is above 400, all of which are employed under master mechanics who contract for the different departments of the work. The weekly payments of wages are between three and four thousand dollars.

In the foundry connected with these works, and carried on by Mr. I. Van Kuran, a large business is done in the manufacture of chilled car and engine wheels. For freight engines the chilled driver is becoming quite generally adopted in New England, and the Boston Locomotive Works are doing a serviceable work in their introduction.

The works at present consist of two ranges of buildings running parallel and forming a hollow square. The locomotive shop is upwards of 400 feet long, sixty-five feet wide and two stories high; the other range embracing the boiler shop, blacksmith's shop, and brass and iron foundries, is 432 feet long and 80 feet wide. These two ranges are

connected by the copper and sheet iron shop, which is sixty by 35 feet, and the entire area of the property owned by the company is ten acres.

The whole number of engines built and delivered by the company is 467, the last engine bearing that number, being the "Onward" delivered to the Fitchburg railroad company of Massachusetts, a line already stocked with the best engines from this company's shops,

The present styles of passenger engines built at these works have full cranks and four coupled drivers and truck. The boilers are made of a strong form, the union of the furnace and cylindrical part being made by an offset formed into a beautiful curve. The frames are formed of side plates riveted to stout bars, and have wrought iron jaws riveted in. The jaws have wedges to take up the wear of the boxes. The boiler braces are round and are turned and polished, giving them a neat appearance. The trucks have rockers, by which the truck adjusts itself readily to any rail, and tracks the engine with ease around curves. The link motion or Vee-hooks are employed for working the valves. The pumps have the same stroke as the piston, and have the check valves near the forward end of boiler. The expansion valve where vee-hooks are used, is the graduated variable cut off, known as Gray's expansion valve. The domes are large and placed near the middle of the boilers. The steam passages are of the most approved proportions and dimensions. Lowmoor or Pennsylvania iron is used for the boilers, and Lowmoor iron for much of the running work. The tires are of Bowling iron. The tubes are always of solid brass, from the American Brass Tube company. Matthew's Sparkers are much used by this company, and they have made arrangements to supply them direct from the manufacturer to roads in want of them.

The dimensions of the twenty-two ton passenger engines are 15 inch cylinder, 20 inch stroke, 5 feet six inch drivers, 42 inch boiler containing 131 two inch solid brass tubes, 10 feet four inches long. Furnace forty inches long, forty inches wide and 52 inches deep. Two and one-fourth inch blast pipes; steam ports 12 inches by 1½ inches, and exhaust two inches wide. Travel of valves 4 inches. The tube surface amounts to 709 square feet, the firebox area to 64½, and the grate 11½ square feet. The tenders have eight wheels and contain 1½ cords of wood, and 1700 gallons of water.

The Boston Locomotive Works have adopted the plan of a large driver and long stroke in their recent freight engines. A stroke of 26 inches with a five feet wheel is now allowed, and the freight engines so proportioned are found to be very efficient and to afford a very advantageous application and economical maintenance of power.

Large Trains.

The Engine "Rocky Mountain" recently drew a train over the Michigan Central road, consisting of one hundred and ten cars weighing about 1000 tons, the freight alone weighing 544 tons. Another engine brought into Detroit a train of one hundred and eighteen cars.

The name of this Engine was the "Salamander." For ordinary business trains we believe these will equal the "capacity" of any Gauge, wide or nar-

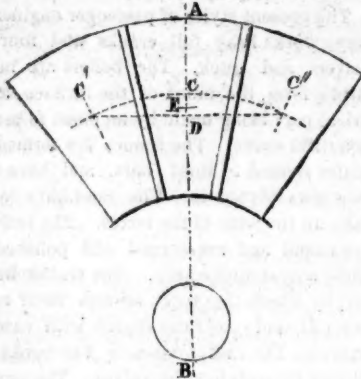
Balancing Locomotive Drivers.

FROM D. K. CLARK'S RAILWAY MACHINERY.

(Continued from page 557.)

4th, In four Segments, fig. 25.—Find as before, the centers c' , c'' , c''' , of the segments; draw c' and c'' and c''' , cutting the line AB ; bisect the interval so enclosed at e , for the common center of gravity.

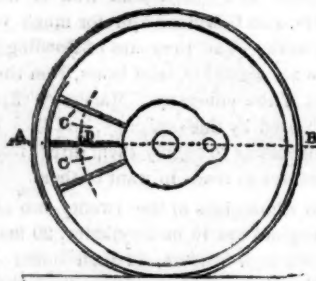
Fig. 23.



Method of finding the common center of gravity of three segments.

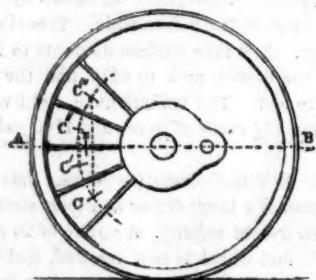
When the counterweight occupies only a part of the space between the arms, the center of gravity may either be found as above or approximated to by bisecting its radial center line.

Fig. 24.



Driving Wheel and Counterweight in two Segments.

Fig. 25.



Driving Wheel and Counterweights in four Segments.

Calculation of the required Counterweight.—Having found the weight to be balanced in the wheel, referred to the center of gravity of the counterweight, by multiplying it by the length of crank, and dividing it by the distance of the center of gravity from the center of the wheel. In the sample engine, fig. 1, the weight to be balanced was found to be 540 lbs., referred to the crank pin; and if the counterweight be in one segment to fill one space, its center of gravity is, by the method just given, at 22 inches radius, and

$$\frac{540 \times 11}{22} = 270 \text{ lbs.}$$

22

the required counterweight,—in this case exactly one-half of the weight at the pin. To find the proper thickness if it be of cast iron, and formed exactly to fit the space a , fig. 20, this space has 191.5 square inches area, and as cast iron weighs 26 lb. per cubic inch, it requires $270 \div 26 = 10.38$ cubic inches of metal. Now $10.38 \times 191.5 = 1.9$ inches, the requisite thickness of the counterweight.

If it be of lead, which is weightier than cast iron in the ratio of 1 to 1.6, the thickness will be $5.4 \div 1.6 = 3.4$ ins.

Again, if in the same engine, the weight is to be equally distributed in three segments, over three entire spaces, fig. 22, the common centre of gravity would be at 20.82, or 20.18-16 inches radius, and the whole counterweight would be.

$$\frac{540 \times 11}{20.82} = 285 \text{ lbs.}$$

The united area of surface would be $191.5 \times 3 = 574.5$ inches, and $285 \div 26 = 10.96$ cubic inches of cast iron required; therefore $10.96 \times 574.5 = 1.9$ inches, the necessary uniform thickness of metal.

Our next business is to show by experiment to what extent a compromise may be effected between the respective claims of longitudinal and lateral disturbances on the rails, in the adjustment of the counterweight, and to give a number of rules for practice.

Experiments of M. Nollau, 1848.*—One of these experiments was made with an inside cylinder engine of the following dimensions:—Cylinders 15 inches by 20 inch stroke, 26 inches apart centers; driving wheels, six feet diameter, leading and trailing, $3\frac{1}{2}$ feet, and 11 feet apart. Weight of crank referred to the pin and the half of connecting rod, 152 lbs., crank, connecting rod, piston and appendages, 500 lbs.

Counterweights were applied at thirty inches radius, between the spokes of each driving wheel; and to balance 152 lbs., the revolving weight on a ten inch crank, $152 \times 10 \div 30 = 51$ lbs. was applied and the engine suspended from the roof clear of the rails, free to vibrate any way; the centrifugal action was perfectly balanced, as there was not the slightest vertical action even at 250 turns per minute. The fore and aft motion was however decided; but it was entirely destroyed by a weight of $400 \div 10 \div 30 = 133$ lbs., balancing the entire moving weight. In this case again, the excess of centrifugal force, caused a vertical action of the machine; and there was also considerable sinuous movement, owing to the greater leverage of the balance weights, being double that of the pistons, etc., measured from the center of the axle.

As 51 lbs. was too light, and 133 lbs. too heavy, a mean of them was applied, $(132 + 51) \div 2 = 92$ lbs.; and the engine was set to work on the rails with this counterweight on each wheel. Such was the improved action of the engine, that after a twelvemonth's work, there did not appear the slightest wear and tear of the draw gear; while formerly even with buffing and draw springs, the bolts were rapidly, and even the foot plate was occasionally buckled or otherwise strained.†

Experiments of Le Chatelier.‡—In the workshops of the Orleans railway, an outside cylinder, long boiler locomotive, like fig. 1, was freely suspended from the roof of the building, eight inches clear of the rails, by ropes about 12 feet long.

* Quoted in Le Chatelier's work on Stability.

† Though the details of this experiment show that M. Nollau was in the right direction, it is plain that he did not recognize the divided action of each crank and its appendages in the two wheels nor the necessity for perfect equilibrium, of placing the balance weights at an angle with the center lines of the cranks. This was reserved for Le Chatelier to work out.

‡ The author has converted the results from French into English measures.

The following were the weights of the moving parts:

| | |
|---------------------------------|----------|
| Crank, referred to the pin..... | 93 lbs. |
| Connecting rod..... | 188 |
| Piston and rod..... | 174 |
| Crosshead..... | 64 |
| Total..... | 519 lbs. |

Three counterweights were applied: 1st, a block of lead, which filled nearly the whole space opposed to the crank, and weighed 141 lbs. Its center of gravity was 26 inches from the center of the axle, and as the length of crank was 11 inches, it would balance a weight of 333 lbs. at the crank pin, for

$$\frac{141 \times 26}{11} = 333 \text{ lbs.}$$

2d, two extra weights, together equal to 88 lbs., were placed, one on each side of the first weight, the center of gravity of each being $28\frac{3}{4}$ inches from the center, and their common center of gravity $26\frac{3}{4}$ inches from the center of the axle; they would therefore balance 212 lbs. at the crank pin, for $88 \times 26\frac{3}{4} \div 11 = 212$ lbs. The total counterweight was thus equivalent to $333 + 212 = 545$ lbs. at the crank pin, which is somewhat in excess of 519 lbs., the weight of the moving parts.

To register the horizontal oscillations, a pencil was fixed to the buffer-beam, which traced the movement on a sheet of paper placed below it, the paper being so disposed as to yield to the vertical movements of the pencil.

Observations were made at various speeds of the engine on its driving axle, up to three turns per second, or an equivalent of 35 miles per hour on the rail, under three conditions.—1st, without any counterweight; 2d, with the partial balance of 333 lbs. referred to the crank-pin; 3d, with the total balance of 545 lbs. Though the speed was limited as above, it was established that, in the same state of balance, the extent of free oscillation was not affected by speed, as the diagrams described by the pencil were the same for all observed speeds,—an experimental result which was plainly predicable from the nature of moving forces for, though, at higher speeds, the intensity of the disturbing force was increased, the time for each oscillation was also shorter. Oscillation diagrams were obtained. No. 1 was described during the free action of the machine, without counterweight; it is elliptical in form, and indicates the combined action of the two varying forces, which cause fore-and-aft motion and sinuous motion, and showing a range of action both ways of about $\frac{1}{2}$ inch. No. 2 was described under the influence of a partial balance of 333 lbs., which, though much below the equilibrium-load, reduced the range of action either way to about .08 or 3-32 inch. When the full counterweight of 545 lbs. at the crank-pin was applied, the horizontal oscillation was effectually extinguished, and the diagram, No. 3 dwindled into a simple point.†

These results show not only the nature and extent of the disturbing action, but the efficacy of counterweights in extinguishing it. When the engine was placed on the rails, with its counterweights attached, it ran with steadiness at 50 to 60 miles per hour, subject only to shocks from the imperfections of the way. The balances being removed, the engine resumed its customary oscillatory motions, violently concussion the draw-gear, and working the spring even at much lower speeds.

The experiment was repeated with the same results, on a six coupled wheel goods-engine, with outside inclined cylinders, and 4 feet 3 inch wheels. This class of engine had been found very unsteady on the rails, and required frequent repair. Counterweights equivalent to 1100 lbs. at the crank-pin, were equally distributed between the three wheels on each side of the engine, well worn by long service; they were placed exactly opposite the cranks, the total weight being less than would exactly have balanced the engine. With a train of 44 waggons, at 30 miles per hour, the engine

ran with steadiness, though the wheels had already been well worn by long service, and the axle boxes had considerable play. The counterweights being removed, the engine was again set to work with the same train; it was then found impossible to exceed the speed of 25 miles, as the engine ran so unsteadily and was affected with very violent oscillation and fore-and-aft motion.

Similar experiments were made, on the Northern railway of France, upon a six coupled wheel goods engine, with outside horizontal cylinders, by suspending it in the workshops. When unbalanced, and put in motion, it described a curve, at the buffer-beam, showing a compound lateral and fore-and-aft vibration equal to about $\frac{3}{8}$ inch. A counterweight equivalent to 882 lbs., or about seven-eighths of the whole weight was applied on each side of the engine. The engine had just been turned in for repair, on account of the play at the bearings and other parts, and was thus under very unfavorable conditions for a trial. It was disconnected from the tender, and with 4 feet wheels ran alone at a speed of 40 miles per hour, with a satisfactory steadiness; there was no fore-and-aft motion at all, and only a slight degree of sinuous movement. Four of the five blocks for balancing being then removed, leaving only an equivalent balance of 176 lbs., or 17 per cent, of the whole weight, the engine alone could not get above 31 miles per hour, and at this speed the unsteadiness was "fearful." When the tender was screwed up to the engine, the fore-and-aft movement was partially destroyed, but the lateral was as violent as before.

SPRINGFIELD, MASS., Aug. 23d, 1853.

MR. EDITOR,

Dear Sir: In your Journal of the 20th inst., I noticed an article headed "Large Drivers." I do not know the author of that article, but if the proportions given of the other engines named are as far from being correct as those given of the "Whistler," the public cannot be much wiser for such information.

The engine built at the Western Railroad Machine shop, called the "Whistler," instead of having a 15 inch cylinder and 26 inch stroke, has a $16\frac{3}{4}$ inch cylinder and 22 inch stroke. The speed of the piston then, in the room of being the same as with a five feet three inch wheel and 20 inch stroke, would be the same as with a six feet and two inch wheel and 20 inch stroke.

Now it is found by comparing the working of the "Whistler," on an express train of five or seven eight wheel cars with another engine with the same sized wheel and a four inch longer stroke, (the cubic contents of the cylinders of each engine being the same) that if the stroke of the "Whistler" is wrong either way it is too short.

If I were to express an opinion as to what has been the cause of a failure to obtain satisfactory results from locomotives with large drivers, I should attribute it more to a lack of sufficient boiler than to the proportions of the cylinder. Having no other object in view but simply to correct an error, I remain very respectfully yours,

W. E.

We are obliged to our correspondent for correcting our error into which we were led by the statement of a friend to the effect that the cylinders of the "Addison Gilmore" and "Whistler" were identical in proportions. It was in fact our intention to have said that the cylinders of the Whistler were $16\frac{3}{4}$ inch, but the types misrepresented our meaning. As to the other engines we are positive except with regard to Mr. Milholland's of which we also believe we gave the correct proportions. We quite agree with our friend that

the failure of high wheeled engines is due to an insufficient boiler capacity, a deficiency which has been amply supplied in Mr. Eddy's engines, and (what is equally worthy of consideration,) they have the least "dead weight" of any locomotives in New England. The superiority of the "Addison Gilmore" pattern was confirmed at the Lowell trial, Oct. 1, 1851, where it received the gold medal for its performance in competition against six other passenger engines from the shops of the oldest and most experienced builders in New England.

Journal of Railroad Law.

THE CONSEQUENCES OF NEGLIGENT TRANSPORTATION.

At the late Oxford Circuit, in England, the following case was tried before Mr. Justice Cramp-ton.

Hadley, the plaintiff, was a miller, and Paxendale and Co., the defendants, were carriers. The plaintiff having injured a crank of his engine, sent it by defendant to a neighboring town for repairs. It was delivered to defendants on Saturday, and they were told that it was highly important that it should be expeditiously carried and returned.

They "promised to deliver it for repair on the ensuing day." But so far were they from fulfilling their engagement, that they did not so deliver it until the Friday after the day originally appointed.

The plaintiff showed that his damage from being so long deprived of the crank, amounted to £25 per day. The defendants had paid £24 into court, as a reasonable indemnity for all the damages sustained by the plaintiff. And it was upon the true measure of damages that the case turned.

The Counsel for defendants exerted themselves zealously in order to mitigate damages,—although some of their pretexts were the unfailing signs of a hopeless cause.

They urged that the whole crank was not worth over £10—and that their compensation for carrying would not net more than 100. They insisted that as there was no gross but only casual negligence, they could not be required to pay exemplary damages.

The Judge over-ruled all these positions. The value of the crank and the compensation for carrying it he said were matters entirely irrelevant to the case. The jury must inquire what under all the circumstances would have been a reasonable time for delivering the crank in compliance with the contract between the parties, and also, what were the natural and probable consequences of non-delivery in regard to the plaintiffs,—and what was the damage therefrom resulting.

In view of damages there was no difference in this case between wilful and casual negligence. The jury rendered a verdict of £50 for plaintiffs.

It may not be amiss here to briefly notice the legal principles which are applicable to several questions, frequently arising, in relation to matters of a nature kindred to that of the case above stated.

When goods are entrusted to a carrier to be delivered and they are not so delivered, the ordinary measure of damages, is the value of the goods with interest thereon from the day when they should have been delivered.

But shall the value be computed at the place where the goods have been delivered to the car-

rier, or at the place of destination? In some cases a question of extreme importance.

It seems to be well settled that the value must be computed at the place of destination. In such a case the probable profits of an adventure and the foreign market are proper subjects of inquiry. But a party desirous of having goods transported must not willfully enhance the damage growing out of the carriers refusal to convey in compliance with his stipulation. If another conveyance can be found by using ordinary diligence, the plaintiff should avail himself of it. Then the measure of damages will be merely the difference between the freight, or price of carriage agreed on with the defendant, and the sum (if greater) which the plaintiff has been obliged to pay others on the same account. *Elliot vs. Russell* 10 J. R. 1.

It is fully established, that in a case of negligent transportation of goods, the subsequent acceptance of the goods is no bar to an action for injuries growing out of such negligence. Nothing but an express release, or an accord and satisfaction constitutes a bar, under such circumstances. Although of course, when goods negligently transported by a common carrier have been accepted by the party entitled, such acceptance may be given in evidence for the purpose of mitigating damages, and limiting the recovery to the actual loss sustained by the owner. *Story of Bailments* § 532.

Suppose that in consequence of the negligent transportation of goods it is necessary to remove them for sale to another place than that of their original destination. Can the expenses of such removal be regarded as an item of the damage sustained by the owner?

It would certainly be unjust for the carrier to answer for experiments of the owner. But if the owner can show that the removal for sale was necessary, the expense of such removal may be recovered. The jury however are the judges as to the existence of the necessity alleged. *Black vs. Pazendale* 1 Excheq. Rep. 410.

By what means shall the value of articles negligently lost, be arrived at? In our State an action was brought against a carrier for delay in forwarding Alpine Mulberry trees, in consequence of which a portion was lost. The plaintiff claimed the market value, four shillings each. The defendant offered to show that it had been ascertained since the delivery, that the trees were worthless, in view of silk-culture, for which purpose they were bought. Judge Nelson adjudged that the true test of the article was its market value at the time of the loss. *Smith vs. Griffith* 3 Hill 333.

When goods delivered for carriage are lost on the way, as in the foregoing case, it will be perceived that the measure of damage differs from that of a case where goods are brought to the place of destination and then lost.

In both cases, the value of the goods at the time of the loss governs, but in the one case the test is the general market price at the time of the loss, in the other the market price at the place of destination.

Boston and Providence Railroad.

Daniel Nason, who has been Master of Transportation on the Boston and Providence Railroad, at Boston, since the opening of the road, has been appointed Superintendent, in the place of William Raymond Lee who resigned to take the presidency of the Vermont Central.

Georgia.

South-Western Railroad.—We have received a copy of the Sixth Annual Report of the President of the South-Western Railroad Company, to the Stockholders. It sets forth a very interesting and prosperous state of its affairs.

The earnings of the road for the year ending Aug. 1st, 1883, have been \$ 140,008 25, being an increase over the previous year of \$ 10,613 25.

The current expenses of the past year, \$63,200 66; leaving a balance of nett profits of \$76,807 59; from this sum, a dividend at the rate of 8 per cent. per annum has been paid, besides Interest on Bonds outstanding to the amount of \$11,865 00 and annuity to the City of Macon of \$1,250 00, leaving the sum of \$ 9,628 19 carried to reserved fund.

The excessive rains and heavy freshets in the months of August, September and November last, seriously injured the road and rendered transportation almost impossible throughout a great portion of South Western Georgia, thereby greatly diminishing the business of the road.

That portion of the road from Oglethorpe to Americus (23 miles,) commenced in April last, is progressing satisfactorily with a force of about 300 hands. It is being constructed by subscriptions separate from the general stock of the present company, but when completed and in operation, will be merged in the common stock.

It is expected that this extension will be completed in time to transport the next crop after the one now growing.

There have been carried over the South Western road within the two years of its operation, 91,235 passengers. Of this number only one was injured and he not seriously. The individual injured attempted, while intoxicated, to get in the cars while they were in motion.

But one run off has occurred since the road was put in operation.

Total number of bales of cotton transported for the year, 38,884.

Average number of passengers per day, 106.

Railroad Items.

On the 10th inst., an additional section of the Virginia and Tennessee railroad, from Salem to the Big Spring in Montgomery, a distance of twelve miles, was opened by the passage of a train of cars over it.

We are informed that the work on the Chicago and Mississippi Railroad, in the direction of Bloomington, is progressing at a very rapid rate. The rails are down for some distance beyond Elk Hart Grove, and it will not be long before the cars can go to Postville, a distance of thirty miles from this city. At Joliet, we learn the company are putting up a fine depot, machine shops, &c. Between that place and Bloomington, the grading is nearly in a condition to receive the track.

The Albany Northern Railroad has been completed and the first passenger train was run through from Eagle bridge to Albany on Tuesday the 16th inst.

A contract has been completed between the Madison and Indianapolis and Jeffersonville Railroad companies by which the former carry over their road all the passenger and freight cars of the latter company. The construction of the Jeffersonville road from Edinburgh to Indianapolis has consequently been abandoned.

Brunswick Railroad Meeting.

The Brunswick Railroad meeting, held at Thomasville Thomas Co., Georgia, on the 28th ult., was well attended considering the unfavorable state of the weather. We suppose there were some eight hundred or a thousand persons present.

The meeting organized under a spacious arbour by the appointment of Judge Love President and Rev. Mr. Sharpe, Secretary.

Judge Love in a short and appropriate address, explained the objects of the meeting. The report of the delegates to the Shareholders' meeting at Brunswick, was read. It was a favorable account of the progress of the Company; of the good faith of the parties engaged; and of the prospect that the road will be built according to contract.

The meeting was addressed by Col. Young and Judge Hansell, of Thomas by N. W. Collier, Esq., of Baker, before dinner: and by Judge Baker and Judge Mays, of Florida. Col. Tift of Baker, and Col. Steward of Thomas after dinner.

The amount of stock subscribed, for which notes were taken during the meeting, was \$26,000.

The whole amount subscribed, in Thomas Co., was \$125,500. We learn that other considerable amounts of stock were promised; and from the spirit which seemed to be awakened at the meeting, we have no doubt that the amount of \$200,000 will immediately be made up by subscriptions in Thomas county. This is the amount for which Thomas county is pledged; and her citizens, we are sure, understand their interests to well to leave leave room for a doubt as to the direction of the road.—They will redeem their pledge, and secure the road to Thomasville.—*Albany Patriot.*

New York Central Railroad.

The Albany "Evening Journal" gives a statement of the improvements in progress by this company, and says: "When the Board of Directors held their first meeting on the 7th of July last, the Executive committee were authorised to take measures for laying a double track on the road from Syracuse to Buffalo, without delay; and to adopt all such measures as, on examination, they might deem necessary to put the entire line from the Hudson to Lake Erie, its rolling stock and machinery, in the very best possible condition.

These instructions are now being faithfully carried out. Action has been taken by the committee, upon a scale commensurate with the resources of the road, and the requirements of the immense tide of travel passing over it. Ten thousand tons of iron have already been ordered. This is now in course of delivery. Competent engineers have been engaged in examining the entire line, and have nearly completed their labors. As they proceed, they report; and the board at its meeting on the 20th of July, promptly ordered the repairs and improvements suggested by them, to be made under the direction of the executive committee.

Twenty-seven additional locomotives have been purchased or ordered. Fifty first class passenger cars are soon to be built, and about four hundred freight cars are now in process of construction.

Five hundred tons of new iron have already been laid in place of old rails that have been taken up. All the rolling stock of the road is now undergoing the most thorough examination and repair.

At Buffalo, the accommodations for freight are to be largely increased. All along the line extensive improvements in the buildings are progressing.

At Albany a new engine house and freight depot are in process of erection. Ground has been

purchased for a spacious passenger depot, comprising the entire block bounded by Steuben, Columbia, Montgomery and Water streets.

These various improvements, it is estimated will cost over three millions of dollars. To meet this expenditure, the \$3,200,000 of now unappropriated stock are set apart.

To effect all this will doubtless require time.—But it is all commenced, and will all be rapidly carried forward. It is determined to make the whole road from the Hudson river to Lake Erie, a completely appointed double track of 328 miles, in all its arrangements and accommodations inferior to none, if not superior to any on this side of the Atlantic."

Manufacture of Iron in Detroit.

A correspondent of the Detroit Daily Advertiser says of the manufacture of iron:

Should the manufacture of iron be entered into at Detroit, the very best quality of boiler iron, now worth from \$80 to \$85 per ton, can be made cheaper and with more ease than the blooms themselves are produced by the other process. With this understanding the following article will be read with benefit:

Estimated cost of making charcoal pig iron at Detroit, in large blast furnaces, railroad to the mines and canal built.

| | |
|---------------------------------------|----------------|
| 1 3/4 tons of ore at \$1..... | \$6 00 |
| 130 bush. charcoal, at 4c..... | 5 20 |
| Flux 50c. labor \$2..... | 2 50 |
| Repairs 50c. superintendence 50c..... | 1 00 |
| Interest, general expenses..... | 1 00 |
| | \$16 70 |

Cost of converting into bar iron not given.

The expenses of manufacturing at Lake Superior are as follows:

Estimated cost of a ton of blooms made on Lake shore.

| | |
|--|--------|
| Two tons of ore, quarrying and hauling 12 miles, at \$2..... | \$4 00 |
| Roasting same at \$1..... | 2 00 |
| Stamping and screening at 50c..... | 1 00 |
| 250 bush. charcoal, at 8c. (actual cost)..... | 20 00 |
| 2 bloomers at \$3 2 helpers at \$1, or same amount by actual contract..... | 8 00 |
| Repairs \$1, superintendence \$1, interest \$1..... | 3 00 |
| General expenses..... | 2 00 |

| | |
|--|---------|
| *Cost on Lake Shore..... | \$40 00 |
| Shipping, freight, carting, storage, commission..... | 15 00 |

Cost when sold at Cleveland.....\$55 00

At Hudson, New York, are two anthracite furnaces of sixteen feet across the boshes, which make over one hundred and eighty tons each one, of pig iron per week. The furnaces of Messrs. Cooper & Hewitt, which are run with the Andover ores, are twenty feet across the boshes, and have produced 220 tons each per week. The machinery to obtain this requires a large outlay of capital. The two furnaces at Hudson complete cost about \$175,000.

Charcoal furnaces would be considerably less expensive, but though it might be expedient to begin with only one or two, an engine and blooming apparatus ought to be provided sufficient for a large number.

Railroad Opening.

On Wednesday, August 24th, the first twenty miles of the Philadelphia and Sunbury railroad, from Sunbury to Shamokin was formally opened.

The Lake Erie, Wabash and St. Louis railroad is being pushed forward with energy. A contract has recently been made for 10,000 tons of Winslow's patent compound rail for the road.

Lyons, Iowa, Central Railroad.

Every mile that our railroad system is extended west from the Mississippi, is so much gained toward a railroad to the Pacific. While government is investigating and deliberating, private enterprise, and private capital, are pushing railroads to the very verge of our own western settlements, so that when the former is prepared to act, it will find more than half of this great work already accomplished, while the steadily increased confidence which our success is securing to our people in our ability to construct a railroad to the Pacific, will render this work a comparatively easy task when finally undertaken.

The pioneer line based upon Chicago, which occupies, probably, the most conspicuous place in public attention, is the Lyons, Iowa, Central Railroad. The line of this road commences at Lyons, on the Mississippi river, very nearly due west from Chicago, and extends in the same direction to the Missouri river, a distance of 335 miles. Lyons is about 132 miles west of Chicago, making the distance from that city to the Missouri, about 467 miles.

Upon the first division of this road, extending 100 miles from the Mississippi, a stock subscription of \$1,000,000 has been raised, and the work of construction is progressing rapidly. Already are 400 men at work upon this portion of the line. From Lyons to Iowa city, the capital of the state, a distance of 75 miles, the graduation is contracted to be done by the first day of March next, and the road will be completed to this point as soon after as the rails can be laid, so that in the whole of the coming year 75 miles of this road will be in active operation.

Active measures are in progress to raise the necessary means for the several divisions of the road of 100 miles, and we learn that a stock subscription of \$700,000 has already been secured. As soon as \$1,000,000 are raised, the work will be commenced upon it. This division will carry the road to the limit of the settlements that have moved west of the Mississippi. There are, however, extensive settlement on the Missouri that have gone up that river, and in a year or two more, the rapid immigration into the state will unite these settlements, so that soon the entire line of this road will be teeming with an active and thrifty population.

There is probably no more attractive State in the Union than Iowa. The whole territory may be said to consist of a rolling prairie, of great fertility, a larger portion of it underlaid with coal, tolerably well wooded. Fever and Ague are almost entirely unknown. The water is excellent, the climate admirable. It is filling up with great rapidity, and in the eastern portion of the State, all the elements necessary to furnish a lucrative traffic to a railroad exist in abundance.

The parties who have this work in charge are well known for their energy and capacity. They are pushing forward their work with commendable vigor. The route of the road is an excellent one in a business point of view. It cannot fail of proving a vast benefit to the State, and we see no reason why it should not prove equally profitable to the Stockholders.

Although the road is been constructed with a view to the accommodation of the local traffic of the route, it is believed by the parties having it in charge, that it will ultimately prove the trunk of

the great lines to the Pacific, through the South Pass. Chicago, evidently must become the terminus of a road to the Pacific, and the road that reaches a given point on the Missouri, or Platte rivers, in the shortest distance from that city, must be the one selected as a portion of the Pacific road. This advantage is claimed for this road over all rival projects.

The Stanstead and Chambly Railroad.

The Sherbrooke (Canada) Gazette says of the late railroad meeting at Stanstead—

The business of Stanstead has for many years been almost exclusively with the States, and the inhabitants of the country take a much greater interest in the southern than in the northern extension. They look upon the Stanstead, Shefford and Chambly Road as the means for procuring the continuation of the Passumpsic line. Were this secured, they would probably deem it more to their interest to unite with the wealthy and thriving St. Lawrence and Atlantic, than with the contemplated road to Chambly.

Appointment.

Mr. George Burrows has been appointed superintendent of that branch of the New York Central railroad, heretofore known as the Rochester, Lockport and Niagara Falls road.

Catawissa Railroad.

The workmen are now engaged in laying down the iron on the Catawissa road. The road is near or quite all graded to Tamaqua, and the bridges over ravines and creeks in the Catawissa valley, will be completed this summer.

India-Rubber Railroad Car Springs, etc.

THE UNITED STATES CAR SPRING COMPANY, having completed their new Factory, are manufacturing and furnishing to Railroad Companies, and Car Builders, RUBBER SPRINGS of the best quality, on the most favorable terms. Also, McMullen's superior WHITE ROSE, not only for Railroads, but all other purposes, and of any size or thickness required. Office No. 25 Cliff street, New York.

Aug. 10, 1853. 3m

Drawing.

B. BLANDOWSKI, Topographical and Ornamental Draughtsman and Designer. Maps accurately drawn, enlarged or reduced from notes or copies. Ornamental designs for decorations, furniture, fences and ornamental foundry work. Architectural designs. Drawings from nature carefully prepared.

REFERENCES. Messrs. Miller and Freund, Ligneous Marble Works, corner of Franklin and Center streets, New York. Also H. V. Poor, Esq., Editor Railroad Journal, and Zerah Colburn, Assistant do.

Address, care of Railroad Journal, 9 Spruce street New York.

BRANDS' LIQUID,

FOR DISSOLVING AND PREVENTING

INCORUSTATIONS IN STEAM BOILERS, IS acknowledged by all who have used it, to be the best preventive ever introduced to the notice of the public. It is not injurious to the Boilers, even if used in large quantities, and is now in general use in a great part of Europe, on Railroads and Steamboats, and for Stationary Boilers.

By the use of this liquid, old incrustated boilers, and principally tubular boilers, which from their construction are in general very difficult and in some cases impossible to be cleaned, may be freed from incrustation in a few days, and by the continued use of it kept entirely free from any future accumulation, thereby increasing the generation of steam, reducing the consumption of fuel and diminishing the danger of explosions.

The proprietors of Brands' Liquid are so confident of the merits of this invention, that they offer one barrel gratis to parties willing to make a trial, and to be paid for only in case of success.

Directions for the use of Brands' Liquid, with testimonials, together with full particulars, may be obtained from the Agents, Messrs. BOURRY & ROEDER, Consulting and Mechanical Engineers.

Aug. 10, 1853.

233 Broadway, N. Y.

N. York and N. Haven R. R. NOTICE OF SUMMER ARRANGEMENTS.

Commencing Monday, May 9, 1853.

| TRAINS FROM NEW YORK. | TRAINS TO NEW YORK. |
|---|--|
| 7 A. M.—Accommodation for New Haven. | 5.30 A. M.—Special, from Port Chester. |
| 8 A. M.—Express for Boston, stopping at Stamford and Bridgeport. | 6.00 A. M.—Commutation from New Haven. |
| 9.10 A. M.—Special for Port Chester. | 6.15 A. M.—Accommodation from New Haven. |
| 11.30 A. M.—Accommodation for New Haven. | 8.15 A. M.—Accommodation from New Haven. |
| 3.00 P. M.—Express for New Haven, stopping at Stamford, Norwalk and Bridgeport. | 9.35 A. M.—Express from New Haven, stopping at Bridgeport, Norwalk and Stamford. |
| 4.00 P. M.—Accommodation for New Haven. | 1.07 P. M.—Express, stopping at Bridgeport, Norwalk and Stamford. |
| 5.00 P. M.—Express for Boston, stopping at N. Haven. | 4.00 P. M.—Special, from Port Chester. |
| 5.35 P. M.—Commutation for N. Haven. | 4.00 P. M.—Accommodation from New Haven. |
| 6.30 P. M.—Special for Port Chester. | 9.30 P. M.—Express, stopping at Bridgeport, Norwalk and Stamford. |

GEORGE W. WHISTLER, Jr., Sup't.

New Haven, May, 1853.

SIXTY MILES DISTANCE SAVED!—ONLY THIRTY-SIX AND A HALF HOURS TO CHICAGO.

MICHIGAN SOUTHERN RAILROAD LINE, carrying the Great Western U. S. Through Mail—FOR CHICAGO AND ST. LOUIS, MILWAUKEE, RACINE, KENOSHA, and all Ports on Lake Michigan.—Through from Buffalo to Monroe in FOURTEEN HOURS WITHOUT LANDING.

The following magnificent and unequalled steamers from the line between Buffalo and Monroe:

EMPIRE STATE, J. WILSON, Commander, leaves Buffalo Mondays and Thursdays.

SOUTHERN MICHIGAN, A. D. PERKINS, Commander, leaves Buffalo Tuesdays and Fridays.

NORTHERN INDIANA, I. T. PHEATT, Commander, leaves Buffalo Wednesdays and Saturdays.

One of the above splendid steamers will leave the Michigan Southern Railroad Line Dock, at 9 o'clock, P. M. every day, (except Sundays) and run direct through to Monroe without landing, in 14 hours, where the Lightning Express Train will be in waiting to take passengers direct to Chicago in 3 hours; arriving next evening after leaving Buffalo.

THE LAKE SHORE RAILROAD.

runs in connection with this line, forming the only continuous line of Railroad to Chicago and the Illinois River.

For Through Tickets, by New York and Erie and Buffalo and New York City Railroad via Buffalo, or by the People's Line of Steamboats, Hudson River Railroad via Albany and Buffalo, apply to

JOHN F. PORTER, Agent,
No. 193 Broadway, corner Dey-st., N. Y.

GREAT WESTERN MAIL LINE.—SIXTY

MILES DISTANCE SAVED, by taking the MICHIGAN SOUTHERN AND NORTHERN INDIANA RAILROAD.—Through tickets to Chicago, St. Louis, Milwaukee, Racine, Kenosha, Waukegan, and Sheboygan, by New York and Erie Railroad via Dunkirk, and Buffalo and New York City Railroad; People's Line of Steamboats, Hudson River Railroad, via Buffalo, connecting at Buffalo with the splendid steamers EMPIRE STATE, J. WILSON, Commander, Mondays and Thursdays; SOUTHERN MICHIGAN, D. PERKINS, Commander, Wednesdays and Saturdays; NORTHERN INDIANA, I. T. PHEATT, Commander, Tuesdays and Fridays; leaving Buffalo every evening (Sundays excepted.) These steamers are low pressure, built expressly for the Lake trade, and for finish, speed, strength and safety, have no superiors anywhere.

The connections with the Express Trains at Toledo and Monroe, for Chicago and St. Louis, are perfect, and can be relied upon.

Forty hours from New York to Chicago. Time and money saved by taking this Line.

Passengers preferring it, can take the Lake Shore Railroad to Toledo, the Michigan Southern and Northern Indiana Railroad to Chicago, thence by the Rock Island Railroad to La Salle, forming the only continuous line of Railroad to the Illinois river.

For through tickets or freight apply to

JOHN F. PORTER, Agent, 193 Broadway, cor. Dey st.

New York and Erie R. R.**PASSENGER TRAINS**

leave Pier foot of Duane street, as follows, viz:—

DAY EXPRESS, at 6 a. m. for Buffalo direct, over the N. Y. and N. R. R., and the Buffalo and New York City R. R., without change of baggage or cars; and also for Dunkirk.

MAIL, at 8 a. m. for Dunkirk and Buffalo, and all intermediate stations. Passengers by this train will remain over night at any station between Susquehanna and Corning, and proceed the next morning.

ACCOMMODATION, at 12½ p. m. for Delaware and all intermediate stations.

WAT, at 3½ p. m. for Delaware and all intermediate stations.

NIGHT EXPRESS, at 6 p. m. for Dunkirk and Buffalo.

EMIGRANT, at 7 p. m. for Dunkirk and all intermediate stations. On Sundays only one Express Train—at 6 p. m.

The Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Chicago, etc., and at Buffalo with first class splendid steamers for Cleveland, Sandusky, Toledo, Detroit and Chicago.

CHAS. MINOT, Sup't.

Notice to Contractors.

PROPOSALS for the Grading, Masonry and Bridging of portions of the Girard and Mobile railroad, will be received at the Railroad Journal Office, New York, on the 1st of October next.

Plans, Profiles and other required information will be furnished at that time. The entire length of the road is 225 miles; commencing at Girard, in Russell County, on the west bank of the Chattahoochee river, opposite Columbus, Ga., and running to Mobile, 52 miles south of Girard, is under contract, 23 miles nearly complete. The amount of subscription up to date is \$2,766,000. The probable cost of the road is \$4,000,000.

That portion of the line between Greenville and Mobile (115 miles) will be placed under contract as soon as the Mobile subscription of \$1,000,600 becomes available.

ROBT. S. HARDAWAY, President.
GEO. S. RUNEY, Chief Engineer.
Girard Railroad Office, 8th July, 1853.

To Contractors.

SEALED PROPOSALS will be received at the Office of the Chesapeake and Delaware Canal Company, No. 64½ Walnut street, Philadelphia, until the 15th day of September next, for the construction of the **NEW LOCKS** to be made on the Chesapeake and Delaware canal. Plans and specifications for said Locks will be exhibited at the office of the Company on and after the 8th of September.

ANDREW C. GRAY,
President Ches. and Del. Canal Co.

LITHOGRAPHY.

PUBLISHERS, Civil Engineers, Machinists, and others requiring Lithographs, plain or in colors, can depend on the high finish of their designs, along with promptness and dispatch.

DAVID CHILLAS,
40 South 2nd Street,
Philadelphia.

May 1st, 1853.

SIMEON DRAPER, No. 46 Pine-st., offers for sale, a variety of **RAILROAD BONDS** and **STOCKS**; also **CITY, TOWN** and **COUNTY BONDS**, among which are—

| 1st Mortgage Convertible Bonds: | |
|--|-----------------|
| | Payable in |
| 7 per ct.—Buffalo, Corning and New York R. R. | New York, 1867 |
| 7 per ct.—Western Vermont R. R. | 1861-71 |
| 7 per ct.—Columbus, Piqua and Indiana. | 1862 |
| 7 per ct.—Catawissa, Williamsport and Erie. | 1867 |
| 8 per ct.—Peoria and Oquawka. | 1863 |
| 6 per ct.—Mayville and Lexington. | 1870 |
| 6 per ct.—Dauphin and Susquehanna Coal Co. | 1877 |
| 1st Mortgage Bonds: | |
| 7 per ct.—Corning & Blossburg. | 1873 |
| 7 per ct.—Buffalo and New York City. | 1866 |
| 7 per ct.—Mansfield and Sandusky. | 1860 |
| 7 per ct.—Toledo, Norwalk and Cleveland. | 1861 |
| 7 per ct.—Vermont Valley. | 1861 |
| 7 per ct.—New Jersey Central. | 1860-70 |
| 7 per ct.—Brunswick Canal Co. | 1867 |
| 7 per ct.—Troy and Bennington. | Troy, N.Y. 1862 |
| Also, second Mortgage bonds of many of the above companies, and— | |
| 7 per ct.—Saratoga and Washington R. R. New York, 1862 | |
| 7 per ct.—Troy and Boston. | 1864 |
| 7 per ct.—Muscoogee Railroad. | Savannah, 1862 |
| 7 per ct.—Huron and Oxford. | New York, 1862 |
| 10 per ct.—Mansfield and Sandusky R. R. Co. | 1855-67 |
| 7 per ct.—Township of Portland, Ohio. | 1862 |
| 7 per ct.—City of Dayton, Ohio, guaranteed by Mad River R. R. | 1861 |
| 10 per ct.—City of Keokuk, Iowa. | Keokuk, 1863 |
| 7 per ct.—Town of Huron, Erie county, Ohio. | Huron, 1861 |
| 7 per ct.—Town of Newark, O. | New York, 1860 |
| 7 per ct.—City of Sandusky, convertible into Junction R. R. Stock. | 1866 |
| 7 per ct.—State of California. | 1862-72 |
| 7 per ct.—Mortgage bonds of the Atlantic Steamship Co. | 1865 |
| 12 per ct.—Improvement Scrip of the State of Wisconsin for improvement of Fox River. | 1862 |
| Rutland and Whitehall Stock, with guarantee of 7 per cent. dividend by Saratoga and Washington Railroad. | |
| Stock in the Western Vermont R. R. Co. | |
| Stock in the Mad River R. R. Co. | |
| Stock in the Buffalo, Corning and New York R. R. Co. | |
| Stock in the Mansfield and Sandusky R. R. Co. | |
| Stock in the New York and Virginia Mail Steamship Company, paying 20 per cent. dividends. | |



WHITE'S SUSPENSION BRIDGE, OF
WOOD OR IRON.

A Model may be seen at the office of CHARLES T. GRANGER, 80 Broad St. N. Y.

Length of span, anything short of 1,500 feet with perfect safety for every kind of travel. The above cut represents a Wooden Bridge with a roof. The arrangement for the Iron Bridge is such as to avoid all the bad effects of changes of Temperature. For a full description, see pamphlets; for further information, respecting models, rights, &c., apply, by letter or otherwise, to ARTHUR WHITE, of JORUA P. THAYER, Printers, Cambridgeport, Mass.

Office next door to the Athenaeum.

Notice to Contractors.



JEFFERSONVILLE RAILROAD.

SEALED Proposals will be received at the office of the Company at Jeffersonville, Indiana, until 10 o'clock, A. M., on Wednesday, the 7th day September, 1853, for the clearing, grading and bridging the road between Edinburg and Indianapolis.

Proposals may be made for sections, divisions, or the entire line, about 30 miles, payable in the 7 per cent mortgage bonds of the Company or part bonds and part cash, and also for payments entirely in cash.

The company reserves the right to accept such proposals as in their judgement will best secure the prompt construction of the road, and to reject all, if none are satisfactory.

The route traverses a fertile country, furnishing abundant supplies of all kinds, and the line is easy of access at all points.

Bidders will please give their post office address.

WILLIAM G. ARMSTRONG, President.
Jeffersonville, July 9, 1853.

Notice to Contractors.



THE UNDERSIGNED will receive proposals, at the railroad office in Indianapolis, to construct the Evansville, Indianapolis, and Cleveland Straight Line Railroad from Evansville to Indianapolis. The proposals will be for the whole line, 150 miles, more or less, or for either of the three sections of about 50 miles each. First from Evansville to the crossings of the Ohio, and Mississippi railroad in Davise's Co.; second, from that point to Spencer, Owen county; Third, from that point to Indianapolis. The bid will be for the whole work the company finding the iron, chairs, and spikes, up to the rolling machinery, or for the earth and rock-work alone. The proposal will state what part of the pay will be received in real estate, bonds, and stock of the company.

O. H. SMITH, President.

WILLARD CARPENTER, Vice President.
Augt. 13, 1853.

Railroad Spikes.

THE Subscribers are manufacturing Railroad Spikes with SWETT'S Patent Improved Machines; and are prepared to execute orders for any quantity, on the most favorable terms. These Spikes are made of the best quality of iron, and, for shape and finish, are superior to any others. Railroad companies and others in want, are respectfully solicited to order a sample before purchasing elsewhere. All orders will receive prompt attention.

SWETT, ELLIOT & CO.
Pittsburgh, Pa., August 25, 1853.

OFFICE CINCINNATI, HAMILTON and DAY-TON Railroad Company.—Cincinnati, Aug. 9th, 1853.—The directors of this company have this day declared a dividend of five per cent. on their capital stock, payable to the stockholders registered in Cincinnati on demand, and to those registered in New York, on and after the 25th inst., at the office of the Ohio Life Insurance and Trust Company, in New York.

1m. FRANK S. BOND, Sec'y.

Book and Job Printing.

The undersigned have added to the PRINTING ESTABLISHMENT of the "RAILROAD JOURNAL," an extensive OFFICE for **BOOK AND JOB PRINTING**, which they are now prepared to execute in the BEST manner, and with DISPATCH.

They respectfully solicit from RAILROAD COMPANIES, orders for the PRINTING of Exhibits, Time-tables, Circulars, Tickets, &c., &c.

J. H. SCHULTZ & CO.

New York April 9, 1853.